

# AMATEUR RADIO

SEPTEMBER 1964



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# "AMATEUR RADIO"

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## OUR COVER

Shows Al Penny, VK5ZC. More details are given on page 15.

## FEDERAL COMMENT



## WHAT'S IN A NAME?

From his early beginnings the Amateur has been acclaimed for his ingenuity, inventiveness and will to experiment. He built his receiver, his transmitter and cut and erected his antennae. He built his own test gear and experimented with bread-board layouts before finally building his gear into its eventual chassis. Since the second world war, these activities have largely ceased. The commercial transmitter and receiver and even antennae is now commonplace in the Amateur's shack.

What are the reasons for this change in perspective? Is it due to the surfeit of Amateur commercial equipment on the market? Is it due to the Amateur now having less time on his hands to build new gear? Is it due to a flush economy in which it is cheaper to buy commercial than build Amateur? Is it due to the demands for more exacting standards in Amateur equipment brought about by large increases in the Amateur world population? Is it due to more complex and elaborate equipment requiring greater frequency stability and flexibility? Or is it due to just sheer laziness?

The only field perhaps that has not been so largely influenced by commercial equipment is in the u.h.f. and s.h.f. fields, although the inroads of commercialism in this part of the spectrum are also evident, particularly in the U.S.A. In any so styled analysis of this sort, one has to ask the obvious question—is this a good or bad state of affairs for the Amateur? In many ways, the availability of commercially made Amateur equipment is a good thing—it gives him more on-the-air time, he can treat his hobby more as a relaxation instead of labour and he now has a signal that is neither over-modulated or putting out an R.A.C. note. On the debit side, however, he is now less technically inclined, will probably have to send his equipment to the supplier if anything goes wrong and perhaps worst of all is losing his incentive to experiment and improve his gear.

This indictment of the Amateur's inventiveness and ingenuity is only a general and not an individual one for there are still quite a large percentage of Amateurs who still like to build their own equipment. New fields in Amateur communication have nearly all been due to the experimental work of devotees to the "old ways"—a good example being the building of the Oscar III. translator satellite transmitter of which we should hear a lot more in the coming months. One might also add, in fairness, that most Amateur commercial gear is built and tested by Amateurs for Amateurs. It would also be true to say that many of the Amateurs who have commercial gear today are those older members who have graduated from the old bread-board, now have less time for home construction and like to use Amateur Radio as a relaxation.

Despite the arguments for and against the use of commercial equipment, there is not quite anything to exceed the thrill of switching on the h.t. of the home-brew receiver and hearing that DX signal come in at S9 plus, or the equally glorious sight of the plate meter of the transmitter dipping to plus zero current before loading the "skywire". There is that inexplicable feeling and sense of grandeur of having created something that really works. We cannot do better than enjoin all newcomers to the Amateur ranks to pursue the old tradition in some small way and experience that sense of achievement which must be kept alive if we are to continue to call ourselves Amateurs.

FEDERAL EXECUTIVE, W.I.A.

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# RE-WINDING TRANSFORMERS

IAN PHILLIPS\*

PASSING examinations and being an Amateur are not good bedmates and when coupled with "student pauperism" some of the problems appear insuperable. Here is my answer to one insuperable problem, 300 volts at 500 mA. by re-winding burnt-out television power transformers. It cost me ten shillings for the purchase of the transformer and no more. The voltage doubler is almost unbeatable costwise (with re-winds) when coupled to silicon diodes, and it is on this basis these notes are formulated.

Fig. 1.



Often these transformers are to be had for the asking, or for a nominal fee. If you get the choice, take the largest one, or the heaviest one, as it will take more turns and handle more power than the smaller ones. In determining the amount of power it will handle, determine the core area, see Fig. 1, by multiplying 1.5' by the stack height and relate this to Fig. 2 to find its power handling capacity. Trying to take more will result in large losses and heating.

## TAKING IT APART

When removing the cover plates take care with the leads as they may break off. Undo the bolts and put them somewhere where they won't get lost. Don't worry about the transformer falling to pieces, it won't. Then insert a knife between the top two laminations to break the "goo" holding them and

pull out using pliers. Take care not to bend them. Continue this until they are all out and put them away so that they will not get damaged.

Now the order of the windings and which is the damaged one must be determined. An ohm-meter is useful for this and typical readings are shown in Fig. 3. Tag them or otherwise identify the layers to save trouble later. The usual order of winding is, from the core out: primary, high tension and heaters.

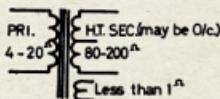


Fig. 3.

The winding that usually burns out is the high tension winding, and this can be seen by the layers of burnt paper. Try pulling on one of the burnt leads and wind the wire so obtained on to a spool. It may break and drastic surgery will be required to retrieve it. After a few layers of wire have been removed it should be possible to separate the primary and high tension wire from the outer windings and this should be done. Continue unwinding until all of the damaged winding is removed and carefully wound up. Then examine the primary to see if it also requires maintenance, it probably won't, but if it does follow the same procedure as for the h.t. winding, including the number of turns required.

## TURNS PER VOLT

Now take the outer windings and remove the protective paper. Several windings in heavy wire will be visible. These are the heater windings and you can use them to determine the turns per volt (t.p.v.) ratio. Carefully count the number of turns on one of these windings and record it. If it is a multiple of five, it is a 5-volt winding; of six, it is a 6-volt winding. Commonly the number of turns will be 10 or 12, but if you find 20 or 24, check again to see if the manufacturer has put two wires in parallel as is often done. If there are 10 or 12 turns, the

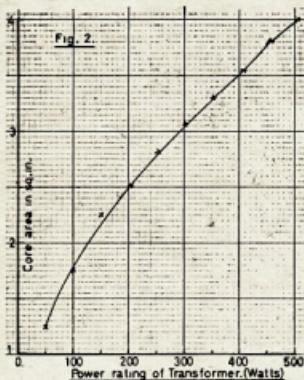


Fig. 2.

\* 179 Abbot St., Sandringham, S.S., Victoria.

† This is an often used width for the core, but if you can determine the exact width, so much the better.

t.p.v. ratio is 2; 15 or 18, 3, etc. A common ratio is 2 t.p.v.

This leads to the number of turns that must now be put on the secondary. If the t.p.v. ratio is 2, then we require 2 turns for every volt, thus for 150 volts we need 300 turns, and for 200 volts, 400 turns, etc.

## WIRE TO BE USED

The gauge of the wire to be used is determined by the current required (see Table 1).

If you are lucky the salvaged h.t. winding will carry the current, either single or doubled. To find its gauge, compare it with known wires, or use a micrometer. If it will take the current, then you must start thinking about re-insulating it as the enamel may be badly burnt. If so, it must be enamelled, if not it can be used as is. The chance of a small bare patch coming against another can be insured against by treating as a joint.

First the burnt enamel should be scraped off by running the wire through a steel-wool pad, taking care not to kink it. It must then be run through a bath of thin enamel, allowed to dry and run through again. See Fig. 4 for a suggested method, although many others will suggest themselves.

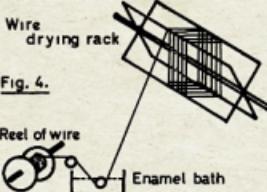


Fig. 4.

If you were unlucky and new wire has to be bought, the amount needed must be calculated. Measure the length of one turn around the primary and of one just inside the outer-winding, take an average and multiply by the number of turns required. This is the absolute minimum of wire required, so buy more.

Example, around the core, 10 inches; inside outer-winding, 16 inches,

$$\text{Average} = (10 + 16) \div 2 = 13 \text{ inches.}$$

$$\text{Inches required} = 13 \times 300 \text{ turns} = 3900 \text{ inches.}$$

$$\text{Feet required} = 32 \text{ feet.}$$

Now consult Table 1 for the weight of wire needed. Don't forget, if the wire is to be doubled, double the length.

Inter-layer insulation is waxed lunch wrap and a supply should be cut up beforehand. When winding, go as near as possible to the edge in order to put the maximum number of turns on each layer. In my case I used No. 26 re-painted wire doubled and managed 46 turns on the first layer and about 38

Gauge B. & S.	Current Capacity (Amp.*)	Turns per inch (Enamel)	Feet per lb. (Bare)
18	2.36	23.6	200
20	1.46	29.4	320
22	0.918	37.0	510
24	0.577	46.3	810
26	0.363	58.0	1300
28	0.228	72.7	2060
30	0.144	90.5	3280
32	0.090	113.0	5227

\* May be increased 40%.

Table 1.

on the last. This was because of caution about going over close to the edges and was about the best possible.

Wind the wire on tightly, taping it slowly and note down the number of turns on each layer as each is completed, as to forget how many are on, is very trying to the patience.

After each layer is complete, place a strip of lunch-wrap over it and hold it in place with scotch tape. Wind all turns in the same direction (this is important).

The high voltage winding is the toughest job and will take a couple of hours. If so desired, taps could be brought out so that a choice of secondary voltages is available and it is suggested that this is done on the edges of the layers to avoid complications. If the wire breaks, don't panic but carefully solder it up and put the joint into an insulated package as shown in Fig. 5.

When the winding is complete wrap several layers of waxed paper around it for mechanical protection, then fit it back inside the outer windings and fix with several pieces of scotch tape (see Fig. 6).

#### RE-ASSEMBLING

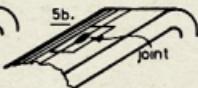
Now the laminations have to be assembled and it is rather simple, just put one E-plate in from one side and one from the other, with the I-plates filling the gaps so left. Probably they won't all go back without extreme force, but don't worry, this small amount of iron will make no difference and to force them in will only damage the windings.

Put the bolts back in and tighten them up, leaving the cover plates off and the leads flying. Now it must be tested.

Fig. 5a.



5b.



5c.



Fig. 6.

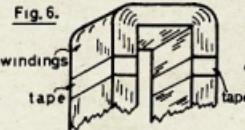


Fig. 7a.

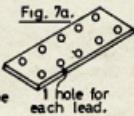
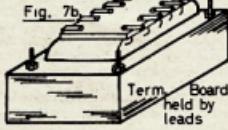


Fig. 7b.



#### TESTING

To test, apply 6.3 volts from another transformer to one of the heater windings. If all voltages appear normal, then remove the 6.3v. and apply 240v. to the primary (use a fuse) and measure the voltages.

Turn off, pick up and drop the transformer about half an inch and repeat the tests. This is to check for intermittent faults. If all is still normal, apply power for two hours and check from time to time for excessive heating. It will warm a bit through losses, but should not get hot. If this is OK, check the voltages again and if all is as it should be, final assembly may be done. If not—heartbreak—it will have to be dismantled and thoroughly checked.

Replace one of the cover-plates and bolt it up tight and prepare a terminal board as is shown in Fig. 7a and attach as shown in Fig. 7b.

Thus you should have tailor-made volts and a knowledge of how to roll your own for almost nothing.

#### NOTE

Care should be taken when selecting the layer insulating paper, as some lunch wrapping papers soften with heat and could allow the tightly wound wire to cut through to the next layer, with consequent possible shorted turns.

Likewise some "sticky" tapes are hydroscopic, which can cause corrosion of winding wire if moisture is absorbed. This will result in open circuited turns, and more heartbreaks.

The above is not just academic interest, unfortunately, but the result of hard experience.—Editor.

## DRIVING ZERO-BIAS 807s—VK4ZJB METHOD

J. D. BISGROVE,\* VK4ZJB

UPON reading a previous article on this subject in "A.R." I was tempted to try methods myself. The results of this experiment have left nothing to be desired.

With the advent of t.v., several tubes capable of large audio power outputs have become available. Of these, the 6CM5 is very good in single ended or push pull work. Its plate impedance is 3,500 ohms normally, which is reasonably low and this is a desirable con-

dition. With 300 volts anode and 150 volts (maximum) screen, you can secure at least 8, and up to 12, watts of audio. This is a good figure to drive 807s in zero bias.

The grid-to-grid impedance of zero bias 807s is 14,500 ohms. A 522 mod. tranny, originally used with push-pull 12A6s, has an impedance ratio of 22,000 ohms p/p. to 5,000 ohms, used back-to-front, i.e. with 6CM5 plate fed through the 5,000 ohms secondary (which is now used as the primary). The 3,500 ohms plate impedance of the

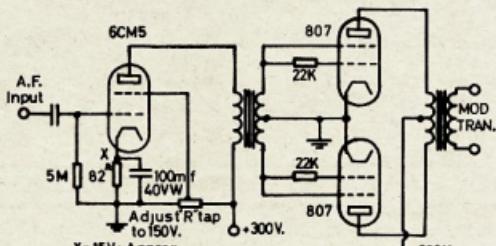
6CM5 reflects 15,400 ohms into the 807 grids—very close to 14,500 ohms and quite useable.

The modulator shown produces 100 watts of clean audio (r.m.s. value) into the 2,500 ohm load, which my transmitter presents.

At no time is the ex-SCR522 mod. transformer over-rated, in fact the primary (now), which was the secondary, previously handled more current than now. These transformers are easy to obtain and 6CM5s are cheap and loaf along here.

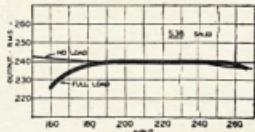
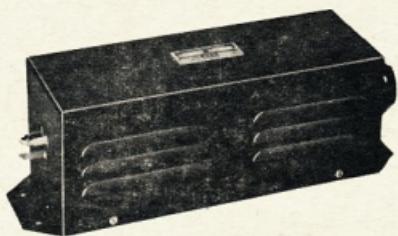
The amount of drive obtainable is adequate, in fact excess is available. A cheap and very effective 100 watts, and an easy answer to an old problem.

Although I tried triode connecting the 6CM5, and also negative feedback, I found that the 6CM5 behaves excellently as shown. Its low plate impedance is the good factor enabling such an effective and simple driver.



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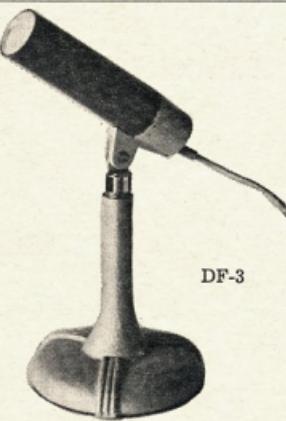
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# Five Half-Waves in Phase on 144 Mc.\*

## A GAIN ANTENNA FOR TWO METRES

BYRON H. KRETZMAN, W2JTP

- On two metre mobile and f.m., the vertical antenna still holds the edge on popularity with its omnidirectional characteristics and simplicity. Add to this, though, a little omnidirectional gain on the order of 5 db. and the vertical begins to look even more enticing than ever.

IN case you didn't know it, not all 2 metre activity consists of DX-chasing, meteor scatter, contests, etc. In many areas, I'll grant you metropolitan and suburban for the most part, local and extended-local communication exists on a highly reliable day-in and day-out basis. Mobile operation, quite naturally, is a regular part of this activity. This harkens back to the days of the old 5 metre band where such v.h.f. operation began. As the result, Hamming in these areas becomes a much more personal thing; everyone soon gets to know everyone else. It becomes easy to round up a gang to help put up a tower or a beam for another band.

Keeping in mind that working mobiles is a requirement, you can see that vertical polarisation is a must. Secondly, those who have tried beams quickly realise that, in these centres of high activity, beams are impractical. Too much can be missed off the back end. An omnidirectional antenna characteristic therefore becomes an additional requirement.

Omnidirectional antennae for 2 metres usually fall into two classes: the ground-plane or the coaxial-type. Both of these normally provide no gain in performance over a reference half-wave doublet, with the possible exception of the stacked coax antenna. What we are searching for is a 2 metre antenna which is vertically polarised and which will give us a power gain in all directions. Bear in mind, too, any gain achieved in the antenna system also results in increased range of reception. And, lastly, a high gain omnidirectional vertically polarised 2 metre antenna should be easy to construct at low cost. (This lets out the stacked coax unless you have the facilities of a machine shop available.)

### THEORY

Gain in an omnidirectional vertically polarised v.h.f. antenna is realised basically by stacking half-wave elements, one above the other. The trick is to phase them properly and to feed them efficiently. This is nothing new. Twenty-five years ago this was called the "Franklin" antenna. Today a somewhat similar antenna is described in the A.R.R.L. Handbook.

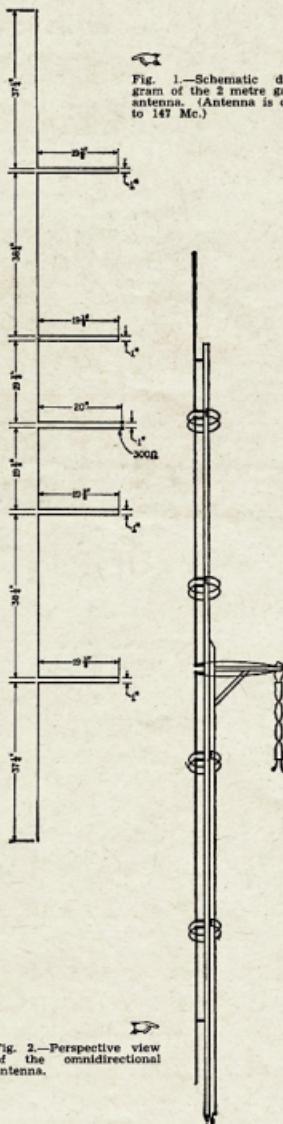


Fig. 1.—Schematic diagram of the 2 metre gain antenna. (Antenna is cut to 147 Mc.)

From page 703 of the 4th edition of "Reference Data for Radio Engineers" (I.T.T.), the gain of an omnidirectional stacked array is approximately equal to  $2L/\lambda$  over the theoretical isotropic radiator, where  $L$  is the length. If we build an antenna of five half-waves in phase, the length, in terms of wavelength, is  $2.5\lambda$ . Putting this into the above formula, the power gain is then  $2(2.5)$  or five times. Since a half-wave dipole is considered to have a gain of 1.64 times the isotropic radiator, the antenna will therefore have a power gain of  $5/1.64$  or 3.05. This, then, is an effective gain of 4.84 db.

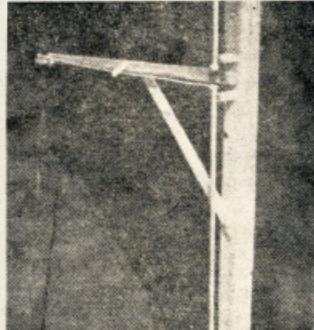
### A PRACTICAL ANTENNA

Fig. 1 shows the schematic diagram of our 2 metre "gain" antenna. As you can see, it consists of five half-waves in phase, one above the other. There are quarter-wave matching stubs in between each element, and the feed point is at the centre of the middle half-wave element. (Feeding this array in such a balanced manner is one of the tricks in getting efficient operation.) The antenna feeder is ordinary 300-ohm t.v. "twin-lead". (Horror!) This was done for several reasons. First of all it is low cost, as compared to coax. Secondly, its losses are less than ordinary coax; and, thirdly, because it is a mechanically simple balanced transmission line with readily available inexpensive (t.v.) supporting hardware.

Our antenna was cut to about 147 Mc., and like any co-linear array it is reasonably broad, having a low s.w.r. out to at least 1 Mc. either side of that frequency.

You could feed this antenna in the centre of the middle element directly with the 300-ohm twin-lead, that is if

(Continued on next page)



Centre feed arrangement showing how the linear matching transformer is twisted to enable the twin-lead feeder to drop straight down.

\* Reprinted from "CQ," March 1964.

you don't mind a standing wave ratio of about 2:1. We did, so a quarter-wave linear matching transformer was installed at the feed point. The results were extremely gratifying. Its installation brought the s.w.r. down to 1:1:1.

Just one more point: Note that, in the interest of balance, the matching transformer is brought away from the feed point at a right angle; and, consequently, the twin-lead feeder is brought down at least a quarter-wave from the lower sections of the antenna thereby little affecting the feed impedance.

#### CONSTRUCTION

Our 2 metre gain antenna is built on wood. (Horror, again?) Using wood greatly simplifies construction and reduces cost. You can't buy 2 x 2's twenty-four feet long, but you can buy a 2 x 4 that long. Just a little sweet-takin' to the lumber yard man and he will rip-saw it right down the middle for you. Of course you should get him to let you pick out a length as straight-grained and as free from knots as possible. Total cost? Less than \$3!

After you get your lumber home, select the half most free from knots for the top section. A few minutes work with a carpenter's plane on the corners will save you from splinters while you are handling the antenna. It's time well spent. The remaining half we sawed in two to make the bottom of the classical "A" frame of hamdom. You could gain another 12 feet or so of height if you were to splurge and buy another (ripped) 2 x 4. We didn't.

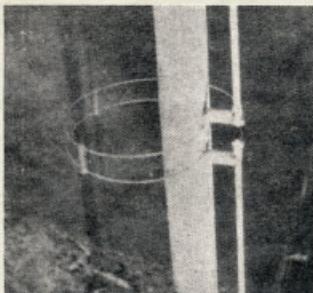
The antenna elements themselves we recommend be made of aluminium to keep down the weight. We found some 3/16" solid rod in surplus, but almost any kind of aluminium rod or tubing up to about 3/8" in diameter can be used. Old discarded t.v. antenna elements, for instance. Another good possibility is No. 8 or 10 aluminium clothes line wire. (This hard-drawn wire is stiff compared to the bare aluminium "ground wire" sold in t.v. parts stores.) Since we used the relatively stiff solid rod, only two ceramic one-inch high stand-off insulators were used with each element. The element was fastened to each insulator with nylon cable clamps, available in parts stores for pennies.

No doubt you have noticed that the quarter-wave matching stubs between each element have been curved around and have had their "shorting bars" screwed down directly to the wood mast. (Horror, thrice!) Well, curving around these stubs makes the whole array lots easier to handle than if they were sticking straight out. No difference in performance was discernible when they were curved back, by the way.

The actual stubs were made of a continuous piece of No. 14 wire, so there were no mechanical problems with a "shorting bar". Spacing was 1", and three spreaders made from 1/4" diameter plastic rod were slipped on the wires. The squared-off "shorting-bar" end was directly screwed down to the wood mast since this is "cold" in so far as r.f. is concerned. This resulted in a fairly sturdy halo about 6" in diameter.

The quarter-wave linear matching transformer at the feed point is much simpler to construct than to describe. This "Q-bar" section, 20" long is made from No. 8 aluminium ground wire spaced at 1". One spreader was installed in the middle. To facilitate the dropping-down of the twin lead feeder, this matching section is given a 90° twist so that the junction point of the section and the twin-lead is horizontal. This junction point terminates on a square bakelite block screwed to the braced strip of wood used to bring the feed point out at right angles to the antenna.

To forestall any possible electrolysis problems and to prevent any loosening of hardware which might be caused by wind vibration, we brushed coil dope on each screw, bolt, and nut, and on the spreaders on the matching stubs. This is real good insurance.



One of the four quarter-wave matching stubs. Note how it is curved around into a halo about 6 inches in diameter.

#### GUYING

Wire guys should come no closer than a quarter-wave (about 20") from the end of the bottom element. This leaves about 15 feet of the mast free to whip around slightly in the breeze. If you live in a windy part of the country you should add an additional set of nylon guys, fastened about at the centre matching transformer. Ordinary nylon fishing line is very good for this purpose.

#### PERFORMANCE

We installed our 2 metre "gain" antenna about 20 feet from our "reference" dipole and about the same height. The reference antenna was fed with about 65 feet of foam-type RG-8/U coaxial cable. The antenna was fed with about the same length of cheap 300-ohm t.v. twin-lead. A coaxial balun, used to transform the balanced line to the unbalanced coax input of the transmitter was installed right at the transmitter. A Knight-Kit P-2 bridge was installed between the balun and the transmitter. The s.w.r. on the reference antenna was 1.5 to 1. On the gain antenna it was 1.1 to 1. About a 2-to-1 increase in signal strength of stations received was noted. Stations worked immediately noted the increase in our signal. Mobiles especially could now be worked out to much greater distances.

All in all, the week-end we used to put together this antenna was well worthwhile. Since initial tests the wood mast has been lashed to the top of a tree, elements above the tree tops, at a height of about 90 feet. The feeder length is now about 125 feet. Mobiles (f.m.) operating on eastern Long Island have been reliably worked out to distances of 30 to 40 miles. And we run only 60 watts input.

#### TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.", in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

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# A GUIDE TO IMPROVING V.H.F. PERFORMANCE

DAVID D. TANNER,\* VK3AAU

**T**HIS article is an effort to demonstrate a way of using limited resources to work over longer distances, and to show what effect various improvements will have on the range over which we can reliably work. Particular reference is made to two metres, but most of the points discussed are applicable to other v.h.f. bands as well. There are several factors which limit the distance over which we can normally communicate, these can be summarised as follows:-

- (a) Transmitted power,
- (b) Receiver sensitivity,
- (c) Antenna gain,
- (d) Path characteristics.

Transmitted power is relatively simple. It depends on our input power, the efficiency of the final, and to a large extent on the loss in the feedline. This latter is one which has been the subject of a lot of discussion.<sup>1</sup> The choice of feedline depends to a large extent on what you are prepared to pay, but particularly where long runs are necessary, the best value for a limited amount of money seems to be formula III, open-wire t.v. feedline. Care must be taken in its installation to keep it free from sharp bends and to keep it away from metal objects. It should also be kept strained as tightly as possible. All these requirements limit its flexibility somewhat, but they are absolutely necessary to make the most of its low-loss characteristics.

Next we come to coaxial cables, many of which are not worth buying. The best of the disposals ones seems to be UR/67 with RG-8A/U a close second if you can get it. The older type RG-8/U is not recommended as it deteriorates in the weather with an increase in losses. Thin types should be avoided, particularly in the construction of baluns. 300 ohm ribbon is not recommended as it is a poor performer when wet. Feedlines should be operated with as low a s.w.r. as possible, preferably below about two to one.

The next item on the list is receiver sensitivity, and this is where a lot of newcomers to v.h.f. have the greatest difficulty. A typical example of an insensitive receiver is the ubiquitous SCR522. It falls down in most departments when compared with the crystal locked converter-communications receiver combination used by most advanced stations.

First, the SCR522 has a poor noise figure because of its pentode front end. This can be improved by adding a pre-amplifier using one of the modern 6CW4 nuvistors or a hot t.v. tube such as a 6ES8. Its second fault is its wide bandwidth due to the use of a 12 Mc. i.f. channel. The usual method used to make these receivers cover the two metre band is to disable the crystal injection chain and make the last multiplier stage into a tunable oscillator at approximately 132 Mc. As this

oscillator is generally not very stable, a comparably broad i.f. is needed to hold the signals within it. A better approach is to leave the crystal chain operating and to use a second conversion stage to 455 kc., using a tunable oscillator on about 11.5 Mc. The 12 Mc. i.f. can then be stagger tuned and possibly resistive loading added to make it about one megacycle wide so that for full coverage of the band the four crystal positions would be used. In this way as much selectivity as you like can be built into the i.f. and the receiver can be used to copy c.w. and s.s.b., the advantages of which will now be discussed.

A.m. reception requires a signal to be about 7 db. above the noise in a bandwidth of 6 kc. S.s.b. only needs to be about 3 db. above the noise to be readable and the bandwidth can be reduced to as low as 2 kc. This is a gain of nearly 9 db. over a.m. C.w. can be read with a 0 db. signal to noise ratio and the effective bandwidth of the ear with a 1 kc. beat note is of the order of 500 cycles. This is well worth considering when path losses are taken into account.

Another important part of the installation is the antenna system.<sup>2</sup> This, in common with the feedline, is part of both the transmitting and receiving circuits, and so is also quite important. For effective v.h.f. performance, antenna height is important, and as a rough rule, doubling the height of an antenna will increase signals by 3 to 4 db. A 12 foot yagi is about the equivalent of a 12 element phased array, although the latter will work over a wider band. A well designed yagi of one particular length is 3 db. better than one of half that length. Yagis should be stacked at least two-thirds of their length apart, preferably more for short ones.

Lastly, we come to the problem of path characteristics.<sup>3</sup> This is something over which we have no control, although an appreciation of the factors involved enables us to predict the results which will be obtained when we make any improvements to our equipment.

Assuming smooth earth, we find that a path loss of about 156 db. exists at a distance of 25 miles between two antennae at a height of 30 feet. This increases to a value of 175 db. at 50 miles, 195 db. at 100 miles, 201 db. at 200 miles, and 214 db. at 300 miles. Using these figures, let us consider the performance of two stations using virtually unmodified SCR522 equipment with 12-foot yagis, 30 feet high.

Transmitter output power, 8 watts.

Receiver noise figure, 10 db.

Receiver bandwidth, 50 kc.

Feedline 50 ft. RG-8A/U 1 db. loss.

This results in a 7 db. signal above the noise at a distance of 45 miles. Addition of a 6CW4 preamplifier and converting to a bandwidth of 6 kc. will increase the range to 75 miles, and the use of c.w. with this set-up is effective up to 250 miles.

Now compare these figures with two stations using 3 db. N/F converters into narrow band communications receivers, with 150-watt transmitters and 18 db. antennae, 50 feet high. Using a.m. they can work one another at a distance of 310 miles, and this can be increased to 370 miles with s.s.b. and 420 miles with c.w.

Naturally, these figures will be modified in practical circumstances by the presence of hills<sup>4</sup> and temperature inversion effects, but in general they will be found to be quite reliable. The nightly contacts between VK5ZDR and VK3NN are a good example of this.

## REFERENCES

The following references to "QST" will be helpful in amplifying most of the points made above:-

1. Ferber, "Coaxial Cable Attenuation," "QST," April 1959.
2. Tilton, "V.h.f. Antenna Facts and Fallacies," "QST," Jan., Feb. and Mar. 1964.
3. Bohmer, "Grounded Grid Nuvistor Preamplifiers," "QST," May 1963.
4. Bray, "A Method for Determining V.h.f. Station Capabilities," "QST," Nov. 1961.
5. Craig, "Obstacle Gain Techniques for 50 Mc. and Higher," "QST," Mar. 1958.

Most of these are obtainable through the W.I.A. libraries and the Editor may possibly be coerced into reprinting some of them if sufficient interest is shown.

## W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

### PHONE

Call	Cer. No.	Cnt-ries	Call	Cer. No.	Cnt-ries
VK5SMS	24	306	VK2JZ	61	156
VK5GRU	2	303	VK6KW	4	211
VK5SAB	45	301	VK3CWL	14	211
VK5CNC	43	288	VK5PWN	29	263
VK5AHO	51	283	VK4SHB	12	192
VK4FJ	21	280	VK4RW	23	186

### C.W.

Call	Cer. No.	Cnt-ries	Call	Cer. No.	Cnt-ries
VK5KB	10	325	VK6GRU	18	260
VK3CX	26	303	VK5AHO	79	245
VK3QL	5	301	VK3SARX	75	242
VK4FJ	20	280	VK3NBB	75	238
VK5INC	19	280	VK5PWN	39	231
VK2AGH	71	262	VK2EZO	2	230

Amendment:

VK3AX 68 146

### OPEN

Call	Cer. No.	Cnt-ries	Call	Cer. No.	Cnt-ries
VK5GRU	8	309	VK5INC	77	287
VK4FJ	32	305	VK3JHG	3	274
VK2ACX	6	300	VK3JZA	43	252
VK5AGH	85	296	VK3TLZ	7	231
VK5MHC	74	285	VK4SHB	7	233
VK3AAU	76	292	VK5EVN	18	233

\*Lye and Dixon Rd., Ripplebrook, via Drouin, Victoria.

# HIGH STABILITY VARIABLE FREQUENCY OSCILLATORS\*

## Part One—Considerations Affecting Performance and Survey of Types

PAUL HARRIS, G3GFN

THE performance of modern variable frequency transmitters is, in no small way, dependent on the inherent stability of the initial frequency control oscillator. Ideally a variable frequency master oscillator should possess the following principal features:

- (a) Have a short preliminary temperature/time stabilising period;
- (b) Maintain its calibration to a high order of accuracy over reasonable temperature excursions;
- (c) Retain its initial calibration closely after replacing valves;
- (d) Be acceptably insensitive to nominal variations in both h.t. and l.t. voltages;
- (e) Give high output;
- (f) Have low harmonic content; and
- (g) Key well.

While the foregoing features may appear obvious, nevertheless, detailed examination of them when related to design and practical considerations will be found worthwhile.

Insofar as the initial temperature/time stabilising period is concerned, even if the major frequency change does occur within a relatively short time from switching on, a v.f.o. which exhibits a continual and slow drift is unacceptable. In c.w. and s.s.b. operation, involving highly selective receivers or precise carrier reinsertion, such frequency shift is intolerable.

### DEFINITION OF STABILITY

As all simple oscillators exhibit some drift, it is useful to define the amount which must not be exceeded when in the stable state. For Amateur purposes a v.f.o. may be considered to have stabilised when the frequency change rate does not exceed 15 parts in  $10^6$  per hour, i.e. 15 c.p.s. per Mc. per hour.

The layout and quality of components have a considerable bearing on the initial and long-term frequency shift of a variable frequency oscillator, and indeed it is enlightening to quantitatively assess the performance of two theoretically identical oscillators compounded from different quality components and constructed in alternative ways. However, at this stage we are not so concerned with drift attributable to components and layout, but rather, the inherent stability of a particular configuration. There are considerable differences between oscillator circuits in respect of the amount of the initial shift, stabilising period and long-term drift.

### EFFECT OF CROSS-MODULATION

A particular effect, believed to be due to cross-modulation between the basic oscillator frequency and its harmonics, and the harmonics themselves,

produces currents at the fundamental frequency which can be out of phase, and varying in phase angle with the original fundamental frequency currents. These currents tend to shift the frequency of oscillation, depending on their amplitude and phase, and it can be shown that, as excitation is reduced, the magnitude of these currents also decreases and, consequently, the drift also reduces.<sup>1</sup> It follows therefore that the lighter the coupling needed to sustain oscillation, then the higher the stability of the oscillator, particularly initially when changes within the valve will have less reflected effect on the frequency-determining circuits.

### CLASSES OF OPERATION

Experiments have indicated that the class of operation of an oscillator has a direct bearing on the initial and long-term stability, and these experiments verify, to a large extent, the cross-modulation theory. The impulses—feedback applied to the tuned circuit can be such that the feedback current ranges between less than  $180^\circ$  and  $360^\circ$  of the cycle. Depending on the period, the oscillator may be classed as "A," "B" or "C" but in all cases grid current flows for part of the input cycle. Class A oscillators have the lowest harmonic content, shortest stabilising period and excellent long-term characteristics. Class C oscillators on the other hand can exhibit considerable variations in respect of long and short-term stability, and, moreover, have high harmonic content.

### CHANGES IN TEMPERATURE

In any apparatus there can be no guarantee that the internal temperature will remain constant over a given period of from day to day. Changes in ambient temperature coupled with variations in dissipated heat are bound to produce differences in internal temperature. It is essential therefore that the v.f.o. is able to accommodate variations above and below the mean level without undue frequency shift and resultant calibration error.

Aside from considerations of rapid stabilisation and long-term stability, it is important to evaluate the effect of changing the oscillator valve on calibration accuracy. Even if a compensating control is fitted it is tiresome to have to adjust this to restore calibration after replacing the oscillator valve. In general, circuits having tight coupling between valve and frequency determining components show the greatest shift. Perhaps a good example of this is the Pierce 100 kc. crystal controlled standard. Changing the valve inevitably requires adjustment of the com-

pensating control to secure zero beat against a Standard Frequency Transmission such as M.S.F.

### VOLTAGE VARIATIONS

With the rapid short-term changes which can take place in mains voltages, not only is the h.t. likely to follow, but the heater supply as well. Highly accurate stabilisation is both expensive and complicated, but nominal stabilisation of the h.t. can be accomplished by relatively simple means through the use of a VR105/30 or VR150/30 or similar gas filled regulator valve. It is important therefore to evaluate the performance of a v.f.o. against variations in h.t. and heater voltage.

### UNDESIRABLE OUTPUTS

At the present time, the transmitting Amateur is confronted with a formidable list of frequencies which must be avoided. By this is meant frequencies which are incidentally produced—harmonics—or inadvertently chosen—in multipliers—and which are likely to cause interference to other services. It is only too well known that television receivers are particularly prone to interference from Amateur transmitters, and, with the greatly increased sensitivities of modern receivers, the very wide bandwidth of front-end tuners, poor image rejection and high susceptibility to cross-modulation and blocking, harmonics and intermediate multiplier frequencies must have the closest attention. Much can be done by filtering and screening, but if the offending frequencies can be avoided, or at the very least substantially reduced, then so much the better. Many v.f.o. circuits are not only vigorous oscillators, but also, for reasons already discussed, produce a string of potent harmonics. Such oscillators should be avoided.

The price of using a v.f.o. with a low harmonic content is that the frequency multipliers must operate efficiently in their chosen mode having the stipulated drive, element voltages and tank circuit Q. Many so called multipliers rely to a fair extent on the harmonic content of the drive to produce the required output and are not inherently efficient multiplier circuits as such. While the factors affecting multipliers are not pertinent to this paper, suffice it to say that certain valves are more suitable than others for this type of service, but many other types can, under suitable conditions, provide satisfactory performance. Whenever possible reference should be made to the valve manufacturers' application report on the type being considered.

### KEYING

While it is accepted as bad practice to key any v.f.o. directly, under certain conditions—such as EK keying for

<sup>1</sup> "Theory and Design of Valve Oscillators," H. A. Thomas, Chapman and Hall, London.

example—it is desirable to d.c. switch the oscillator in some manner, unless frequency shift keying is incorporated. If there is a frequency change during the initial current flow within the oscillator circuit, then this will give rise to chirp. An oscillator which meets all other requirements may well show chirp when d.c. switched. Care must be taken when assessing chirp as r.f. circulating currents due to badly disposed earth points, or reactive decoupling capacitors can produce this effect. Nevertheless different oscillator configurations have their own individual chirp characteristics.

#### OUTPUT CAPACITY

Finally, a variable frequency oscillator should have a high output capability, always provided that this is not at the expense of other more desirable features, especially in respect of harmonic content. The object of having a high output from the v.f.o. is not simply to use all this output and trim down on the following stages, but rather to be able to load the v.f.o. lightly and so work it well within its power capabilities. Heavily loaded v.f.o.s always show frequency shift as the subsequent stages of the transmitter are tuned up, or as the transmitter is loaded. The frequency differences which occur between stations, allegedly on the same channel, are usually due to pulling of the v.f.o. frequency due to loading effects, rather than inaccurate "netting".

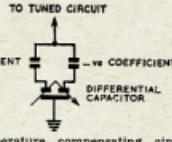


Fig. 1.—Temperature compensating circuit employed in Hallicrafters HT32 transmitter v.f.o.

#### CHOICE OF COMPONENTS

Having dealt at some length with the main features expected of a v.f.o. circuit, and, inter alia, the reasons for them, it now seems prudent to examine the requirements in respect of components.

No matter how excellent the probable performance of any v.f.o. circuit, stability and drift are still at the mercy of the components employed, not so much in terms of their initial values—which can always be adjusted—but rather in respect of the actual stability of the components themselves and their ability to retain their original values through temperature excursions. Often negative coefficient capacitors are employed to compensate for changes which occur in values of frequency determining components due to heat. While it is acknowledged that, correctly applied, this can be highly satisfactory, it should be kept in mind that, in theory, perfect compensation can only be achieved at one specific frequency, and the greater the amount of compensation applied, the more frequency selective it will become. The usual problem encountered is that the exact value of negative coefficient capacitor is not available, or the one that is has an incorrect temperature/capacity grad-

ient. Under these circumstances the final result is a compromise between perfection and minimum obtainable drift. Hallicrafters have solved this problem very neatly in their HT32 s.s.b. transmitter. In this circuit, which is shown in Fig. 1, a differential capacitor is used in such a manner that varying the differential varies the amount of correction "seen" by the tuned circuit. With this arrangement practically perfect temperature compensation can be achieved.

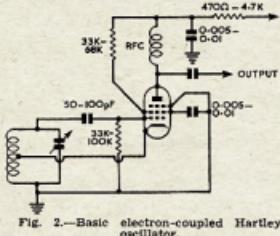


Fig. 2.—Basic electron-coupled Hartley oscillator.

For most Amateur purposes, high quality components, attention to mechanical stability and component layout can, with a suitable circuit, produce an oscillator which is satisfactory even under critical operating conditions.

With regard to the frequency determining circuit in particular, the coil should be wound under as much tension as the gauge of the wire will allow, taking care when working with fine gauges not to stretch the wire. High grade non-porous formers are essential, and when winding has been completed and adjusted, it should be heavily doped. The use of a former having an iron dust core has much to commend it, as not only are inductance variations simply made by adjustment of the core, but also the physical size of the coil can be reduced. Caution is required in circuits where ferrite cored coils are employed for, with high power, saturation may take place. However, this is unlikely in most circuits used in the low level stages of Amateur transmitters and certainly will not occur in any of the v.f.o. circuits to be described in detail.

Tuning capacitors should for preference be double spaced so that the effects of expansion, and consequent variation in capacity are held to a minimum. General mechanical rigidity is important, as is the method of securing connection to the rotor plates. The

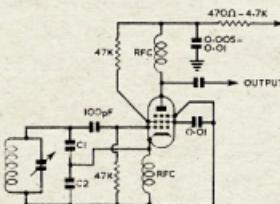


Fig. 3.—Basic electron-coupled Colpitts oscillator.

quality of the insulation supporting the fixed vanes must be absolutely above reproach as otherwise the tuned circuit may well contain an unstable element.

The resistor which acts as the grid leak is normally effectively in parallel with the tuned circuit, or at least one element of the tuned circuit. For this reason it requires as much care in its selection as do the frequency determining components themselves. Not only must it be highly stable in its d.c. resistance, but also in respect of any self capacity or inductance. It should be well overrated in terms of wattage so that any changes which do take place are as result of environment which can be controlled—rather than the actual current flow through it.

The valveholder requires special attention. Only first grade insulate mouldings with silver plated contacts should be used.

In considering the foregoing comments, it should be borne in mind that we are concerned with **highly stable** oscillators. Much licence can be, and often is, taken where the application is not critical, the frequency low, or automatic frequency correction circuits employed.

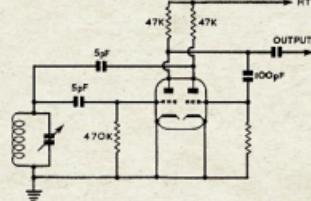


Fig. 4.—Basic Franklin oscillator.

Comments which apply to transmitter master oscillators are equally applicable to receiver local oscillators, and for that matter to secondary injection oscillators such as b.f.o.s. and carrier reinsertion oscillators. Despite the general advance in receiver design, only in the Racial RA17, Drake 2B and Collins 75A does any serious attempt seem to have been made to match local oscillator performance to other improvements. All too often "domestic" type receiver oscillators are still to be found. In fairness to other manufacturers, there does now seem to be an awareness that these departments have been too long without attention. The increasing use of s.s.b. has undoubtedly shown the very real need for this revision in view of its particularly high demand on stability.

#### SURVEY OF TYPES

In the immediate post-war period, v.f.o. circuits were usually of the Hartley (Fig. 2), Colpitts (Fig. 3) or Franklin (Fig. 4) types. With care and attention both the Hartley and Colpitts could be made sufficiently stable for the receivers in use at that time, but invariably they required considerable individual treatment. Some were excellent, some were passable, but others could claim no polite label. All tended to be fussy as they ran in modes varying between class B and class C with tight coupling between valve and tuned

circuit. They were excellent for multi-band transmitters as their output contained substantially high levels of close order harmonics. This particular attribute proved to be disaster to many Amateur stations as television spread throughout the country.

Of the three oscillator types mentioned, the Franklin has an inherently high stability characteristic, but as this oscillator requires either two triodes, or a twin valve, and has low output, it did not find the favour which it deserved. In respect of this oscillator, it is interesting to note that one manufacturer is employing it in a receiver of advanced design.

In the late 1940s the Clapp oscillator (Fig. 5) came to the attention of the Radio Amateur and received great acclaim.

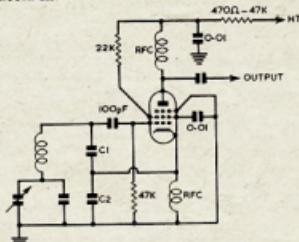


Fig. 5.—Basic Clapp oscillator.

The Clapp oscillator—originally developed by G. G. Gouriet, of the B.B.C. represented a major advance in variable frequency oscillator design as it substantially divorced valve capacities, and changes therein, from the frequency determining circuit, and in so doing, removed the major cause of frequency drift.

There is a family resemblance between the Clapp and Colpitts oscillators as examination of Figs. 3 and 1 will show. In the Clapp oscillator the frequency control circuit is arranged for series tuning, and as a result C1 and C2 form part of this circuit as well as being a capacity divider for feedback purposes. In the Colpitts configuration, C1 and C2 are in no way associated with the tuned circuit but are a capacity divider pure and simple, other than from the point of view that the effective capacity of C1 and C2 in series is in parallel with the tuned circuit. In the Clapp oscillator, high values at C1 and C2 effectively swamp valve capacities so that any changes therein are very small with respect to these capacitors.

While achieving a high order of stability the Clapp oscillator has two disadvantages. First, the output drops rapidly if worked over a frequency range in excess of about 1.2:1. Second, while the Clapp can be designed to work at frequencies in excess of 10 Mc., as the frequency increases, the values of C1 and C2 decrease rather rapidly with the result that they no longer effectively swamp valve capacities, and so the principal advantage of this configuration becomes lost.

The Clapp oscillator was the subject of further development by Vackar of the Tesla organisation with results that do not appear to have been appreciated

in the same way as was the original Clapp design. This development was reported in the "Bulletin" in some detail.<sup>6</sup> What Vackar did to the Clapp very nearly equals what Gouriet did to the Colpitts. The result is an oscillator that fulfils almost perfectly the requirements stipulated in the second paragraph of this paper.

The Vackar—sometimes called the Tesla-oscillator (Fig. 6) operates over a wide frequency range, 2.5:1, before there is any serious reduction in output, and over the range of 2:1 the output remains sensibly constant. Given due care and attention, the Vackar can be used on a fundamental frequency of 72 Mc. where it shows an order of stability which is quite outstanding.

<sup>6</sup>R.S.G.B. "Bulletin," March 1956.

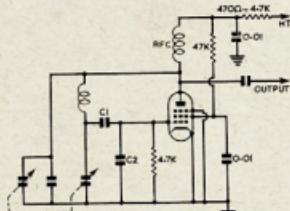


Fig. 6.—Basic Vackar/Tesla oscillator.

Although its output is high, harmonic content is low as it operates substantially in class A.

(To be continued)

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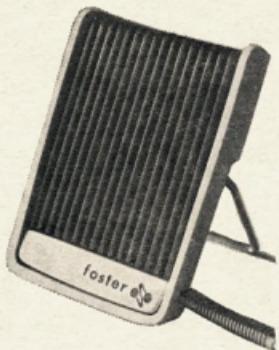
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# 7th JAMBOREE-ON-THE-AIR

17th and 18th October, 1964, starting 10 a.m. Saturday

**WORLDWIDE** interest in this annual event is increasing every year as more and more Amateurs and Scouts become aware of the potential that both organisations can contribute to international understanding and goodwill.

Last year over 300 Amateur Radio Stations were placed at the disposal of Scout Groups throughout Australia.

The Boy Scouts Association is very conscious of the help and co-operation that is being given to the Scouts and their Leaders, and much goodwill and publicity is received by the Wireless Institute of Australia, both overseas and in Australia through the many magazines and other publications of the Boy Scouts Association.

Since we know there will be many for whom this 7th Jamboree-on-the-Air will be their first, we will repeat the rules hereunder.

## OBJECTS

Firstly, the objects of the Jamboree-on-the-Air are as follows:—

To let Scouts talk or listen to their brother Scouts, whether they be in the next town or in another country, and to learn about their activities, families and homes.

To introduce them to Amateur Radio and Electronics.

## RULES

The rules are as follows:—

1. License regulations must be strictly observed at all times.
2. Any part of the 48-hour period may be used.
3. Any authorised frequency may be used.
4. To take part, call CQ Jamboree or answer another station using this call.

5. You can use c.w., a.m., s.s.b., or any mode authorised.

6. This is not a contest. There are no prizes given for the most contacts made. A participation certificate will be sent to all Amateurs sending in a log sheet which will be provided by the Scout Group, or by sending a report to the Branch Organiser.

You will probably be approached by a member of the Boy Scouts Association, but if you are not and would like to help a local Scout Group, then write to your State organiser. The Victorian Branch Organiser is Mr. J. G. Nicholson (VK3AAN), 28 William Street, Glenroy, Vic.

## ORIGIN OF JAMBOREE-ON-THE-AIR

During the Jubilee Jamboree at Sutton Coldfield in England in 1957, which was organised to commemorate the origin of Scouting some 50 years earlier, a number of Scout Radio Amateurs got together at the Radio Station there and held what they called a Hamfest. A suggestion was then made and enthusiastically adopted that Scouts should try to contact each other on a fixed date each year by means of Amateur Radio. Thus was born "Jamboree-on-the-Air".

The idea had a lot of merit, for although World Jamborees are held only every four years, the expense unfortunately precludes many Scouts from taking part, despite the fact that it is an experience that cannot be compared with any other Scouting activity—the experience of camping in a foreign country and meeting and making new friends from among the thousands of Scouts there from all parts of the world.

Those who attended the Sutton Coldfield meeting realised this and recognised that the answer lay, to some extent, that it was still possible for Scouts to meet and talk to each other without leaving their own towns. So that as a means of bringing home to the average Scout the true meaning of World Brotherhood, without any expense to the boy or his parents, the scheme could not be bettered.

So in 1958, over the week-end of 10th and 11th May, the first Jamboree-on-the-Air was held, with Leslie R. Mitchell of England, an ex-A.S.M. of the Boy Scouts of America, and himself an enthusiastic Radio Amateur under the call sign of G3BHK, as the Honorary Organiser. Wide publicity of this initial attempt was given by the World Bureau.

It is interesting to record that despite the short notice given the event and the fact that weather conditions did not prove encouraging, quite a number of contacts were made, and the comments of those who did participate was so favourable (both from Scout and Amateur Station operator's point of view) that the Organisers were encouraged to start planning for the following year.

As Jamboree-on-the-Air grew to its present proportions, so did the need for greater organisation, and in response to requests from the participants of those early years, the Boy Scouts World Bureau took over the organisation, until now it has become an outstanding event in the World Calendar.

—Jack Nicholson (VK3AAN),  
Victorian Branch Organiser.

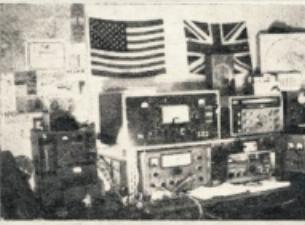


## MEET 11AGI

GINO ANTONUCCI

via Dagnano 25/14, Genoa Pegli, Italy.

Gino, aged 44 years, has been in Radio as an Amateur for only three years, but in these three years has acquired an Amateur Station that does credit to the owner-operator. Gino in every day life is a chemist. I don't think it would matter how you called Gino, he could relate on the radio what you used. Gino has worked 162 countries and has 149 confirmed.



On s.s.b. he has a KW Viceroy plus a linear 1000 W. g.p. Receiver is a KW77. On a.m. the transmitter is a home-made 140 watts, which uses two 6146s. For mobile and emergency work, Gino uses an NCX3 on 20, 40 and 80 metres with d.e. and a.c. power supply. For r.t.t.y. Siemens Hell. The antennae are rotatable, which is important, there is one on 20, three elements on 15, and two elements on 10 metres. He also has a ground plane for 20, 15 and 10 metres, plus a long wire on 40 metres.

Good luck to you Gino and more power to you. Thanks for the beaut letter, also the photos. May we all, through Amateur Radio, get to understand each other much better than we could without it. 73 from VK.

Bert, VK5BN.

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# ROSS HULL MEMORIAL V.H.F. CONTEST 1963-64 RESULTS

THE Federal Contest Committee takes pleasure in presenting herewith the results of the 1963-64 Ross Hull Memorial V.h.f. Contest.

From the comments received we feel that the deletion of the present scoring system for 6 and 2 metres under a distance of 50 miles between stations would be justified. Consequently we will recommend to Federal Executive that the scoring table be changed in this regard.

Some contestants suggested that the distance be 75 or 100 miles, whilst several thought that a return to the State contacting State system would be preferable. To quote one of the contestants: "Working all local stations puts stations in remote areas at a disadvantage to those located in areas of high local v.h.f. population."

The above change to the scoring table would eliminate the daily scramble for numbers in metropolitan areas and at the same time give the country contestants a fair chance in the Contest.

Another suggestion worthy of consideration is that the duration of the Contest remain as at present, but that the period for which a contestant may submit a log be reduced from one month to nine days or sixteen days. This may increase the number of logs submitted and increase activity. At present it seems that a number of Hams compete in the Contest for a couple of weeks and then become disinterested for one reason or another and do not bother to send in a log because their chances of winning the Contest are small. One line of thought is that a contestant would be prepared to concentrate his activity in say a 9-day period but still operate over a period of one month. He would forward a log for the nine

consecutive days in which he scored the most points. This suggestion has some merit. What do you think?

This year's honours go to VK5ZDR, M. J. McMahon, with a score of 7,746 points, and was a very fine effort. In conclusion we would like to congratulate the other award winners and thank those who competed and submitted logs.

—Federal Contest Committee, W.I.A.

## TROPHY WINNER

VK5ZDR—M. J. McMahon ... 7746 pts.

## AWARD WINNERS

Section A—Transmitting, Open	
VK2ASZ—R. L. Lear	2051 pts.
VK3QV—D. H. Rankin	1048 "
VK4PU—J. D. Purdon	597 "
VK5TN—B. G. Tideman	1388 "
VK6HK—D. E. Graham	1262 "
VK7DK—D. H. Kelly	874 "
ZL3RZ—G. Burrell	1210 "

Section B—Transmitting, Phone	
VK1VP—E. Penikis	2147 pts.
VK2ZCF—R. C. Norman	2791 "
VK3ZNJ—K. W. Jewell	2503 "
VK4ZEK—D. J. Gemmell	5294 "
VK5ZDR—M. J. McMahon	7746 "
VK6ZDT—T. M. Stanicic	2664 "
VK7ZAP—W. J. Henry	1858 "
VK8ZCX—J. B. Masters	1749 "
VK9ZBV—J. P. Hayden	514 "
ZL1AUM—C. Maddock	1530 "
ZL2AAH—B. D. Gibbs	900 "
ZL3RK—T. J. McKenzie	1250 "

## Section C—Receiving

WIA-L2242—D. J. Patterson	1333 pts.
WIA-L3138—G. N. Earl	2276 "
WIA-L5049—D. R. De Cean	195 "

## INDIVIDUAL SCORES

Section A	
VK2ASZ—St. Marys	2051 pts.
VK3QV—East Malvern	1048 "
3YS—Box Hill	227 "
VK4PU—Woombey	597 "
VK5TN—Kings Park	1388 "
VK6HK—Wembley Downs	1262 "
6MM—Nedlands	1052 "
VK7DK—Launceston	874 "
ZL3RZ—Westport	1210 "

## Section B

VK1VP—Canberra	2147 pts.
VK2ZCF—Croydon	2791 "
2ZLP—Armidale	2158 "
2ZFB—St. Marys	1665 "
2ZFS—Goondelabba	1098 "
2ZSK—Doover Heights	627 "
2ZID—Woolongong	87 "
VK3ZNJ—Beaumaris	2503 "
3ZJQ—Edithvale	1608 "
3ZIC—Mildura	1019 "
3ZOL—Mornington	771 "
3ABP—Altona	483 "
3ZGL—Keon Park	308 "
3NN—Yanac	286 "
3ZOP—Moorabbin	185 "
3ZMS—Frankston	191 "
3ZOS—Yanac	180 "
VK4ZEK—Hawthorne	5294 "
4ZAL—Deagon	1689 "
4RO—Ayr	927 "
4ZGA—Ayr	811 "
4ZWL—Cairns	666 "
4ZBC—Cairns	578 "
4ZWB—Cairns	539 "
4ZJM—Gordonvale	247 "
4ZDG—Ayr	84 "
VK5ZDR—Henley Beach	7746 "
5ZBR—Gawler East	3633 "
5ZKR—	3427 "
5ZHJ—Gawler Rail	1728 "
5ZDX—Oaklands Park	1600 "
5ZK—Plympton	1524 "
5ZGF—Plympton	1505 "
5ZSG—Seacombe Gardens	1492 "
5ZJH—Somerton Park	1292 "
5ZEJ—Forreston	1107 "
5WV—Elizabeth North	920 "
5CL—Nermont	780 "
5ZBC—Mile End	379 "
VK6ZDT—Mt. Yokiné	2664 "
6ZDS—South Perth	1422 "
6ZCD—Albany	1313 "
6ZDB—Nedlands	1255 "
6LK—Mt. Pleasant	1021 "
6ZAL—Bunbury	192 "
6ZAG—Mt. Hawthorn	126 "
VK7ZAP—Hobart	1858 "
VK8ZCX—Darwin	1749 "
VK9ZBV—Port Moresby	514 "
ZL1AUM—Auckland	1530 "
ZL2AAH—Foxton	900 "
ZL3RK—Christchurch	1250 "
Check Log: VK5NW.	

## Section C

WIA-L2242—D. J. Patterson,	1333 pts.
WIA-L2211—R. C. Abernethy,	1069 "
Miranda	
WIA-L3138—G. N. Earl,	
Black Rock	2276 "
WIA-L5049—D. R. De Cean,	
Brighton	195 "
VK5—Miss J. Martin,	
Wild Horse Plains	8 "

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# John Moyle National Field Day Contest 1964 Results

THE number of logs submitted in this year's Contest was less than last year and the individual scores were not as high as previously. Very few comments were received regarding the extension of the operating period or the change of the title of the Contest.

It is to be hoped that more operators will be enticed into the field for next year's Contest to increase the activity.

The logs submitted, generally speaking, were quite good, but some of the S.W.L.'s claimed points for hearing fixed stations and this reduced some of the claimed scores quite considerably.

As in last year's Contest, the Multi-Operator Stations were very active and in most cases used all bands from 1.8 to 576 Mc., using a combination of home-made and commercial equipment. VK3APC had no fewer than 28 operators and junior assistants.

Transistorised equipment was quite popular, particularly d.c. to d.c. converters and transistorised modulators. Several operators used transistorised converters and fed them into car radios, Command receivers, etc.

The troubles encountered by operators were many and varied, and the following are a few selected at random. VK2NA, the Narranderra Radio Club station, operated at a spot called Dry Lake and had the misfortune to be washed out by a thunderstorm on the Saturday night. VK5OR, B. H. Bussen-schut, had transmitter trouble at the start of the Contest due to the unfor-givable omission (his words) of two vital high tension by-pass condensers in the transmitter.

The aerials used ranged from beams to 300-foot verticals suspended by hydrogen balloons. The G5RV antenna was a popular one.

In conclusion, we would like to congratulate the award winners and thank those who submitted logs and hope that we will again see you next year.

—Federal Contest Committee, W.I.A.

## AWARD WINNERS

### Section A (Portable, Phone)

VK1SB—S. E. Brown	174 pts.
2RX—A. R. Hennessy	399 "
3AAW—W. G. Wines	181 "
4ZK—R. M. Feenaghty	666 "
5TH—T. Mitchell	382 "
6JO—R. J. Skevington	142 "
7DK—D. H. Kelly	505 "

### Section B (Portable, C.w.)

VK1SB—S. E. Brown	171 pts.
2ASZ—R. L. Lear	195 "
3APJ—P. J. Dettman	350 "
5ZF—I. L. O'Donnell	311 "
7CH—C. Harrison	152 "

### Section C (Portable, Multi-Op.)

VK2AWI—V.h.f. & T.v. Group of N.S.W.	597 pts.
3APC—Moarabin & Dis-trict Radio Club	2968 "
5LZ—Elizabeth Amateur Radio Club	3047 "
VK1RD—R. Davis	580 pts.
2APK—D. F. Kiesewetter	645 "
3XB—I. Stafford	470 "
4LT—A. E. Carter	240 "
5RR—R. G. Harris	265 "
7SM—S. G. Moore	580 "

### Section D (Fixed Stations)

VK1RD—R. Davis	580 pts.
2APK—D. F. Kiesewetter	645 "
3XB—I. Stafford	470 "
4LT—A. E. Carter	240 "
5RR—R. G. Harris	265 "
7SM—S. G. Moore	580 "

### Section E (Receiving)

VK1—J. Watson	440 pts.
WIA-L2033—D. W. Shephard	280 "
WIA-L3042—E. W. Trebilcock	695 "
WIA-L2233/VK4—R. Erwin	165 "
WIA-L5065—A. Raftery	190 "
WIA-L6021—P. W. Drew	55 "
VK7—R. W. Mutton	305 "

## INDIVIDUAL SCORES

### Section A (Portable, Phone)

Pts.		Pts.
174	VK6JO	142
399	6MM	68
189	VK7DK	505
67	7KH	108
40	7CH	74
161	7AL	36
147	7ZAI	26
666	7ZAS	26
362	7GV	20

### Section B (Portable, C.w.)

Pts.		Pts.
171	VK5OR	57
195	VK7CH	152
50	7DK	50
350	7GV	27

### Section C (Portable, Multi-Op.)

Pts.		Pts.
597	VK3YS	223
349	VK5LZ	3047

### Section D (Fixed Stations)

Pts.		Pts.
580	VK4LT	240
645	4VX	115
190	VK5RR	265
170	5CL	190
145	5WC	140
470	VK7SM	580
275	TRY	50
305	270	

Check Logs: VK5LD, VK5CV.

### Section E (Receiving)

VK1—J. Watson	440 pts.
VK1—L. Raine	355 "
VK1—A. Davis	165 "
WIA-L2033—D. W. Shephard	280 "
WIA-L2280—R. Bowden	90 "
WIA-L3042—E. W. Trebilcock	695 "
WIA-L3188—C. R. Christian	440 "
WIA-L3144—P. Gibson	430 "
WIA-L3138—G. N. Earl	405 "
WIA-L3158—R. L. Harrison	380 "
WIA-L2233/VK4—R. Erwin	165 "
WIA-L5065—A. Raftery	190 "
VK5—K. B. Rendell	105 "
WIA-L6021—P. W. Drew	55 "
VK7—R. W. Mutton	305 "



## THIS MONTH'S COVER

This is VK5ZC, Al Penny, situated at Risdon Park, Port Pirie. Al runs 150 watts a.m. from the MacMillan transmitter to a G4ZU. The receivers are an ELL and an Eddystone 750. A keen and efficient c.w. operator, and for this Al uses the bug. He is the proud father of one son and two girls. After spending some time at the Channel 7 transmitters in Adelaide, he has returned to the old firm of H. G. Palmer, where he is service manager for their local branch at Port Pirie. Always eager for the chance to join in a contest, Al has many certificates to his credit. At the moment he's busy putting ointment on the itch that he's getting from s.s.b.

—Best, VK5BBA.

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# S W L

Sub-Editor: Chas. Abernethy, WIA-L2211  
39 Urunga Parade, Miranda, N.S.W.

A small boy, when asked to give an example of co-operation, said: "Two cows standing side by side, facing in opposite directions, each flicking the flies off the other's face with its tail". That may be more a definition of co-operation, but it does give the right idea.

Co-operation requires the parties concerned to work together to attain a goal. It requires a clear knowledge of what the goal is and it often requires correct timing. Some men are stronger than others, some are bigger, some are naturally quicker, but in teamwork everyone can contribute his effort.

The team must work as a unit. This too, requires every member of the team to pull his weight. Remember; when you work together—work together.

## A BRIEF INTRODUCTION TO TRANSISTORS

Fundamentally the transistor is a valve which controls the flow of current carrier (electrical charges in motion) through the semiconductor crystal material of which it is made. As the current carriers pass through the transistor they are controlled as easily as if the same current carriers were passing through an electron tube. This ability to control current carriers and their associated voltages makes the transistor particularly suitable for use in electronic components and in modern communication equipment. In increasing numbers transistors are being used in radio, sound, radar, facsimile, telephone, teletypewriter, and computer equipment.

The history of transistors and semiconductors has been relatively brief and consequently only a few papers have been written. However one type of crystal semiconductor has been used as a rectifier since the early days of radio. A crystal was lamped in a small cup or receptacle and a flexible wire (cat's whisker) was attached to the top of the crystal. Tuning of the receiver was accomplished by operating the adjusting arm until the cat's whisker was positioned on a spot of the crystal that resulted in a sound in the headset. Tuning a variable capacitor produced maximum signal in the headset. Frequent adjustment of the contact point was required.

It was not until World War II that the point contact diode appeared. The point contact diode had a very low shunt capacitance and did not require heater power. These properties not only provide a definite advantage over the electron tube diode, but endear themselves to the radar and other high frequency applications.

The point contact diode is a semiconductor, a metal base and a metallic point contact. The connections to the point contact diode are an external lead welded to the metallic point contact, and an external lead welded to the metal base. The development of the point contact transistor was announced in 1948. The physical construction of the point contact transistor is similar to that of the point contact diode except that a thin lead is soldered to the metal point contact semiconductor is used. One lead is called an emitter lead, the other a collector lead. When the two metallic points are properly biased with respect to the metal base, the point contact transistor is capable of producing a power gain.

In 1949 the development of the junction diode was announced. The junction diode consists of a junction between two dissimilar sections of semiconductor material. One section because of its characteristics, is called a P type semiconductor, the other an N type. The connections to the junction diode consist of a lead to the P type semiconductor and a lead to the N type semiconductor. The junction diode handles larger power than the point contact diode, but the junction diode has a larger shunt capacitance.

The development of the junction transistor was announced concurrently with the development of the junction diode. The junction transistor and junction diode, however, of the junction transistor is similar to that of the point contact transistor, but permits more accurate prediction of circuit performance, has a lower signal-to-noise ratio, and is capable of handling more power than the point contact transistor.

Since the invention of radio itself nothing has had such a wide sweeping effect on communications as the transistor, and there is no doubt that in the near future new developments will be seen which will make the junction transistor as useful as the electron tube is today.—Bob ZDDA.

ments will be seen which will make the junction transistor as useful as the electron tube is today.

## MORE CONTRIBUTORS

In August "A.R." I mentioned re the response from members towards our page. During the past month four more S.W.L.'s added their contributions to our column. This, although only a small percentage of our number, is very much appreciated and maybe during the weeks to come a few more may pen their pieces and so stop me from com- plaining.

To hand from the B.B.C. are copies of their pamphlets "Aerials for Short Wave Reception" and "Hints for Better Reception". These can be obtained by sending me a 9 x 4 inch stamped addressed envelope.

## NEW SOUTH WALES

A very pleasing feature of our meetings of late are the new faces we are seeing. Also our country members who are on holidays in Sydney are paying us visits. We would welcome any S.W.L.s who happen to be in our city to come along to our meeting on the third Friday in the month. Last month Phil Z2PI showed films of an interesting variety and interested to do more. We are indeed grateful for your co-operation Phil.

We extend a welcome as new members to our Group to Reg L2294, Mick L2295, Tom L2296, Harry Mortimer, and S.M. McLean. Captain which he happens to be to offer S.W.L.'s a later date. This can be adapted to s.w.l.s sets so should prove to be a very handy attachment.

Frank Kujanlik has logged quite a variety of stations from 14 to 26 Mc., too numerous to print. Frank is studying for his ticket. We wish you all the best OM. Russell L2262 reports that his mobile set-up is working well. Owing to a break which damaged the insulation on the base of his whip, he had to have a replacement. Could anyone supply or give a clue as to where he could obtain one. Russell's QTH is 91 Smart St., Fairfield, N.S.W.

L2297 recently logged W4A, KH6, FBS and KG6 on c.w. Robert L2289 is another newcomer to the page, but is having rx trouble at the moment, so maybe next month we may have some news. I hope that my suggestions were of some value.

Don L2202, with listening time increased due to the wet weather, the old log book is rapidly being filled. Much interesting DX about in particular on 14 Mc. H.H. G. 1000, T.Y. G.

KZ5, PA0, HK, VE, YO, XX, VZ, and many others. Best QSL to hand lately JT-1KAB. Yes I guess when one is up in the 2000 newbies are hard to come by.

## VICTORIA

It would be appreciated if a member of the LJ committee would let me know what is happening at their meetings as I feel sure that the members who cannot attend would be interested to know.

Eric L2049 recently QSLs received RFG, LUS, UFG, UHE, UHE, UI8, UL7, UP2, VSI, S24 and VK3AA/T/M. Has had QSLs from 102 countries during the first seven months of 1964, and is still awaiting 67 reports as yet. Heard recent HLB, BYL, KZ5, GS, UFG, VZ, and 9PM2, ZP5 and PM4. In the recent ZL Memorial Contest, logged 51 stations for 560 points. Eric is motoring to VK4 and on his way back via VK3AWZ to hope to meet up with him for the first time.

Noel L3101. Thanks for the very informative letter OM. Noel has received DX awards from "Popular Electronics", and any member interested should write to Hank Bennett, P.O. Box 220, Englewood, N.J., U.S.A., who will be only too pleased to oblige.

Lloyd L3141. Welcome to the page OM, and many thanks for your letter. Only too pleased to add your name to the DX ladder. Lloyd uses a home-built rx with 18 tubes plus all mod. and while his antenna is a half wave dipole on 14 Mc. March 2074 is awaiting his L2 number and rings me several times a week. He asked me to pass his regards on to all my friends in VK1 and to say that all is well with VK1 and myself.

Peter of Pinjarra way out in the west of the capital is a very keen S.W.L. I trust that all my answers to those many questions were to your satisfaction.

## QUEENSLAND

Henry L4071, being a member of our Armed Service, is only active as an S.W.L. when spare time permits. His rx is an HE30 and uses tuned antennae on 40 and 80 metres. Lew L4020 tells of how he is trying various types of aerials, and of investing in an aerial tuner.

plus a story of some fish that he caught, but did not send a photo to back up his statement. hi. Recent loggings are KT, KL7, WBG, VJ1, SMS, DUI, and VSI.

## SOUTH AUSTRALIA

Alan L5005 reports that he has received QSLs from KL, VSI, WT, WA4, VES, SME, 1. I am pleased to hear that you are moving to a quieter QTH, that is so far as radio is concerned, and with the prospects of that 100 ft tower you should rapidly climb up the DX ladder.

## WESTERN AUSTRALIA

Peter L6021. Although the weather has not been too good Peter says that the DX is best on 40 mc with only KWs and Far East on 20. QSLs received: ISL, KHA, ZSA, OM, DL4, DLA, 17, CLW, ASV, 17, 18, 19, 20, and many others.

Well gentlemen, that seems to be the end of the news from here. Thanks to Bob ZDDA for the article and all the above chaps for their letters, and I hope to hear from a lot more members in the near future. 73, Chas L2211.

## S.W.L. DX LADDER

	Countries	Zns.	S.s.b.	W
	Conf. Hrd.	Conf. Hrd.	Conf. Hrd.	Std. Hrd.
E. Trebilcock	222	289	40	—
J. D. Trebilcock	124	281	38	20
P. Drew	112	240	31	55
A. M. Atticott	93	195	31	8
M. Hillard	89	141	28	107
M. Cox	84	232	20	51
E. Arden	63	150	28	43
C. Abernethy	60	102	32	—
N. Harrison	55	172	31	22
I. Thomas	42	130	16	15
L. James	41	142	23	29
R. Beckley	27	47	19	—
A. Raftery	14	117	15	—
R. Oats	9	26	8	—

## NEW CALL SIGNS

MAY, 1964

VK1VK—S. Grimsley, Dpt. Astronomy, Australian National University, Mt. Stromlo.  
VK2AU—E. L. Koller, 54 Memorial Ave., St. Ives.  
VK2SX—F. R. A. Jenkins, 55 Wattie St., Haberfield.  
VK2AO—Mrs. H. A. Grouse, 17 Ivanhoe St., Maroubra.  
VK2AOH—A. A. McCullagh, 25 Boyle St., Balgowlah.  
VK2BD—K. Khan, 14 Woodward Ave., Strathfield.  
VK2BSB—S. Brown (Miss), 64 Marmon St., Marmon Point.  
VK2ZER—D. Searcy, 23 Government Rd., Burwood.  
VK3JKY—G. S. Mann, Flat 2, 12 Wattle Ave., Glebebury.  
VK3WP—B. J. Davy, 19 Charlesworth St., Laverton.  
VK3JAKS—E. H. Michell, Station: 256 Moreton St., Ed. Brunswick; Postal: P.O. Box 366, Hamilton.

VK3ARH—R. A. Hallamore, 15 Hall St., Brighton.  
VK3ZBD—R. McK. Cook, 10 Foch St., Ormond, Victoria.  
VK3ZCK—C. K. Maude, 2 Clarendon St., Avondale Heights.  
VK3AZW—T. E. Wooley, Flat 3, 27 Southey St., Elwood.

VK4HO—R. G. Crosier, 48 Algoira St., Morimunda.  
VK4HQB—A. Bentson, 32 Kingshole St., New Farm.

VK4ZBN—W. M. Bryce, 9 Raymond St., North Ipswich.  
VK4ZM—B. N. Noseda, 10 Rose St., North Ward, Townsville.

VK4ZMJ—J. H. Morgan, 2 McKewen St., Bundaberg.

VK5BY—B. L. Weeks, 8 Coolah St., Kilburn.  
VK5EK—A. C. Rechner, 36 Rayneham Rd., St. Peters.

VK5EP—K. M. R. Doherty, 22 Railway Ave., Home.

VK5WE—D. A. Campbell, 10 Turnbull Rd., Enfield Heights.

VK5ZRL—R. W. Lee, 3 Adamsen Ave., Belair.

VK6MW—T. W. H. Murden, Flat 14, 118 Terrace Drive, East Perth.

VK6ZBA—R. B. Buzard, 56 Moulden Ave., Mt. Yolking.

VK6ZBY—J. M. Young, 59 Melvista Ave., Claremont.

VK6ZEF—N. R. Crosby, 42 Tuart St., Bunbury.

**D X****VP4, OA4, BV, ZM7, 7GI, FP, AC5, MP4, ZC6, TY2**

Sub-Editor: H. A. BEHENNA, VK5BBB,

14 Stanley Street, Crystal Brook, South Aus.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB-EDITOR

Well this month I have been reading up on the DX notes published in some editions of "CQ". In the year 1950-51 I could hardly believe that things were so good in those days gone, now so far left behind. Most of us will remember with a touch of nostalgia those days when the bands were passing most of the day and night. This is added to so I can show you how difficult it is for the poor sub-editor to scrape enough together for one issue. Those days I could have written a page about one particular band.

We must surely be scraping the bottom of the proverbial barrel! OK then, let us make ourselves more efficient by making that beam, overhaul that receiver, build that converter, and do that job to get aerial time that has been lost for so many months. Let us accept these conditions as a challenge. DX news is about as scarce as the reports I am receiving for this column.

**160 Metres:** No reports and at my location the noise is too high for concentrated listening.

**80 Metres:** No reports of any type of activity DX wise. On interstate would this band be continuing changing in distance.

**40 Metres:** Quite a lot of ZL contacts can be had here at very good signal strength. Some G contacts are still to be had around 1.7 Mc. in 6030z. Arise 2AVA still seems to be able to get through from Springfield, but the actual number of stations available seem to be getting less. This refers to s.s.b. Plenty of contacts on c.w. can be had. Very solid QSOs to W, KH6, KC, KJ on s.s.b. if you try from 0900z for a couple of hours. You may have to steer somewhat to the west on s.s.b. but it's well worth it if you are interested enough. Some good sigs from the north can also be had providing you can stand the QRN. Give it a try sometime, you may be surprised what you can do.

**Meters:** So no exotic DX is forthcoming and you have to be lucky to get a real rare one. No longer can it be done with a dipole. Some Latin Americans can be heard during the a.m. hours but conditions are such that you have to listen carefully or you will miss each one that bobs up there are five VKS calling. Central America follows from 0330 for an hour or so, but this varies daily. More activity from XE, this month, which is good. Some others W for three hours each day. VE sig seem to have dropped off a little but there are still plenty to be had. Not many from KL7 and a lack of JA on this band. Some activity from the African continents, sign not our stars, but not much. Some from here are early risers and take their Ham activities seriously. Long path to Europe in the a.m. hours, but not tried from this QTH.

**20 Metres:** An occasional break through to the States around 0430z and I think the JAs are coming back in the early a.m. hours. Should improve in a couple of months.

**16 Metres:** No reports from in or out of VK.

**ACTIVITIES**

**CEDZ/RMM** heard working on s.s.b. 14275 kc, heard for New Zealand 0230z.

**VSSMH** operating from Brunei, bops up occasionally with borrowed s.s.b. gear. He does not know how long it will be before the gear has to be returned. If you need Brunei and get him, QSLs go to Box 777, Singapore.

**Roy KHBGBS** proved an interesting contact. Says he will be visiting VK and hopes to settle here. If you'd like to twist his arm, he is on 14290 kc, 1000z, dots at 1000z. **Baldwin, KNUGA/6** caused quite a stir when operating from his hotel in San Francisco. Reported some VKs worked him. Quite a shot in the arm for Amateur Radio operators.

**TY2BV** from San Jose is looking for contacts from VK on the low end of 14 Mc. s.s.b. QSL to P.O. Box 4460, San Jose, C.R., around 0430z.

**ZSM2MI**, Marion Islands, has a new QSL Manager, ZS5JY. (3AL)

**ZT1A** is active on the low end of 14 Mc. (3TA)

**Rey Vidicombe**, late of Melbourne, is operating under the call of EL2Z on 14260 kc, s.s.b. with 1 kw. He would appreciate hearing anything from VKs giving him a call. Try 2000z. QTH in column (3ALD).

**VK5RD** is active on c.w. from Norfolk Island, while Ray VK5RD is on a.m. 14.1 Mc. around 0630z.

Reported that **FB9CD** is active on 14 Mc. s.s.b., but as yet frequencies not known at time of compiling notes.

**HM5CA** is active on 14 Mc. s.s.b.  
**Harmi SWL**, a budding working mobile with the Swan, has been heard working W and VE stations.

**Muriel VK2JIA** and **Hebe VK2AOA** have been making their presence felt on the DX scene. Their **XYL**'s don't mind much about some pretty good sensible operating from both these girls. How's the housework, girls? Keep it up.

**Wally** is operating from ZA Albania, nothing definite about call sign or frequency, but it is reported that he's using HT325 plus linear to a 2E beam.

Heard a whisper that **UP2KZA** is also very active on 14 Mc.

Should be an influx of maritime calls from W as rumour has it that there are at least five vessels to come to VK. First one was **WS8ACH**.

The top W signs on a.m. about 14205 kc seem to want to do it the hard way, all running very strong signals and the maximum power. Some of them are using 1000w. I don't know what they are trying to prove, but to me it proves they are very hard to copy when a couple of ss and ss get on.

I note that Ralph's **VK5TR** article on cubical quad has at long last made the grade in "CQ". How about some more from VK having a go?

**ZL1ABZ**, transmitting from the Camedee Islands on Sandspit Island, can be heard on 7950 kc on most week-ends at approx 0905z s.s.b. He will be returning to ZL in November.

**A1 VK5ZC** is rumoured to be the winner from VK5 of the ZL Memorial Trophy.

**Ken VK5TE** is probably the first VK to contact the name Malawi. Reunited with his working of **7QTZA**. Congrats Ken. Ken also advises that the QSL address of the above is Box 41, Zomba, **FB9Y/FC** via **HB9TL**. **KG4AM** is Box 32, Navy 115, F.P.O. New York, N.Y. (TEN Bruce).

**Bruce VK3BM**, in a short note re 160 metres says that most of the DX boys on this band are using vertical antennae with much more success than with the ordinary dipole or long wire. He suggests that you stick to the band for its next opening that they would be well advised to adopt this type of antenna. (Ten Bruce.)

**5B1P** is now active on 7 Mc. a.m. from Cyprus with 15kw and 100' antenna. Report not confirmed, that QSL is off again to ZE4A, SZ5, then to AC3, and will be using Hammarlund equipment.

**KGEH** has several operators from Marcus Island to give s.s.b. contacts from there.

**CP8AB** is a missionary who operates from the jungle 30 miles from the coast in Bolivia. S.A. Operates on 15 mc zbs.

**8F2ER** requests QSLs via Box 405, Djakarta.

**TC3ZA** is an American in Turkey who is on c.w. 14085 kc. during the week-ends.

**PT2CC** operates c.w. on 14051 kc. at approx 1400z.

**CR1CR**, Carlos, has been working many of the VK boys with his 300w, tx 3 el. beam from Mozambique, Pot, East Africa.

**OTH CORNER**

**DL1VA**-Horst Dorn, Grossreuter Muenchen, 136 Issmaning, Obb.

**FL3I**-Bernard Allamier, 138 rue Ordener, Paris.

**VEAWE-K** L. McMillan, 3511 Allan Rd., Lynn Valley, N.W., Vancouver.

**9K2AK**-P. P. Post, C/o Kuwait Oil Co. Ltd., Ahmad 4.

**9UDJ-A** Fabiel Mecaniciani T.P.M., Usumbura, Burundi.

**9G1DN**-John Parnell, P.O. Box 128, Dunkwa.

**LATPA**-Engenier G. L. Jorgenson, Risor, Norway.

**ZS6AGW**-A. E. Mills, P.O. Box 12, Monrovia, Johannesburg, T.V.

**5TSAD**-Alban Duffau, Posts and Telecoms, Nouakchott.

**4X4MF**-Amos Sovi, 5 Kalisher St., Haifa, Israel.

**CHONG-1**-L. Bergman, Pte. F. C., Manila, Philippines.

**PY4APO**-Jose A. De Couto Filho, Pains, MG.

**JASRU**-K. Nomura, W.18, S.11, Sapporo J.

**3A2AY-R** L. Glashier, QSL via G8LX.

**G8LX-R** L. Glashier, 279 Addiscombe Road, Croydon, Surrey, E.6.

**EASAP**-Adolfo P. Real, Gral. Marino 24, Melilla.

**LU1DEH**-Jose H. Impagliazzo, Viamonte 377, Maracaibo, Venezuela, BS, AS.

**ZE1NE**-Mike P. Henderson, P.O. Box 460, Salisbury.

**5R8BQ**-Lod Core, C/o. Sotrasum, P.O. Box 105, Fort Dauphin.

**ZP8AJ**-Alfred State, Plat. Neembucu.

**SU1AC**-Vicente, P.O. Box 1002, Acrop-

port, Niamey, N.W., West Command, Up-

pington, C.P.

**VQ2MB**-R. M. Bourne, P.O. Box 1062, Broken Hill, N.R.

**VP7NA**-Harold K. North, P.O. Box 5197,

Nassau.

**V03ZW**-William Walker, P.O. Box 94, R.C.

A.F. Station, Goose Bay, L.

**YS2RC**-Werner Aegidius M., Colina Santa Lucia, Santa Ana, A.S.

**AP2NM**-R. Nazar Mohamed, Telephone Ind., Pak-

istan, Haripur.

**F9V-R** Robert Brochet, 11 Boulevard Delteil, Paris 16.

**VR4CB**-Colin Blair, P.O. Box 53, Honiara, Guadalcanal.

**SM5QB**-Alban Ostermann, Hard, Stockholm.

**FZ1BG-R** F. Nassif, P.O. Box 928, Para-

maribo.

**OZ1NJ-J** Nielsen, Falkonveraengt 7, Copenhagen.

**GM3IQS-A** G. Walker, 1 Saxon Rd., Knights-

wood, Glasgow, W.3.

**EL2F-R** Vidicombe, via Radio ELWA, P.O.

Box 192, Moorooch, Liberia.

Name of country to follow all the above QTHs.

**STATIONS WORKED FROM VK**

**Ken VK7HT** has worked on 20 mx s.s.b.: ZS2MI, TI2HF, KG4AM, S2AA4, S2AA5, 7Q7LA and on c.w. VQ8EF. Best QSLs received: 7S2AG, 7V7V, 7Z2AN, 8Z5, 9H5M, HZ1AB, 9Q5AB, FBW8W (Cross).

Self. 14 Mc. s.s.b.: HR1SO, XE1S, XE1TO, XE1HE, XE1NN, XE1ER, XE1CE, KLF7AF, XE2VY, W1XPC, W8FMO, WUJUL, W6UXS, W6VW, W6VW, W6VWH, W6WADY, W6WAD, KHS2GS, W4MQM (LP), XE2DB, XE2GP, XE1TK, WIUEG, VETHE, WOHTH, CE2Z1/MM, VSSMH (Brunei).

**AV1 VK5ZC**: 14 Mc. a.m., W8HJM, WLSJ1, V7AG, V7AD, KJ6ZG, W8HJM, VETHE, ZE1BR, W6DQO and on c.w. KVVKP, 7 Mc.

c.w.: ZE1JJ, K5QFX, WSULS, WIETK, WB-

GOAK.

**SUMMARY**

The bands are now at their lowest although quite an amount of activity is still going on. The poor soul who has worked his 200 or so countries and is looking for his next, well he is scratching, but those who just want to work the stations available, he sure can have his fun. The DX is still there. What I mean by this is that just a few kilocycles outside the bands one can hear an essential service running at good strength from a certain area, but alas, no Amateur activity. I can't follow that.

Can anybody enlighten the writer and a few others on the limit of power on s.s.b. please? The local Amateurs from here would like to see this in print from an authority.

Very many thanks to Ken STL, Bruce SEM, Gary SZK, Gert SRX, and AI SZC for their unfailing continued support of this column.

73. Bert VK5BB.

**CALL BOOK MAGAZINE**

The Federal Treasurer, W.L.A., is still in business with Call Book Magazine. The directory of Amateurs is published in two editions (1) American Amateurs, (2) Amateurs of the World except American (known as the "DX Line").

The Treasurer has recent back numbers, which have been used by W.L.A. Officers and are in near-new condition, at £1 post paid. This is rather less than half price. Apply to Bob Boase, VK3NN, 30 Cardigan Street, Carlton, Vic.

With the advent of spring and the approach of another v.h.f. DX season, the number of hours devoted to operating on 6 and 2 is bound to rise for most of us. This is going to mean a lot of fun, a chance to meet old pals and in a few instances, more t.v.i. Even if your station is capable of getting into a lot of t.v. sets, you may not encounter much neighbour trouble, so long as you operate only at widely spaced intervals and for short periods. But when the operating pace picks up, so does the neighbour response.

Some of the discussions overheard on the air show that the Amateur in question has not the foggiest notion of what causes the t.v.i. or what to do about it. Too often he just lets the situation deteriorate, does nothing to correct it, and helps to make things worse. Eventually, they are bound to explode eventually and being able to prove his transmitter is "clean" will be no solution to the mess he is by then.

It may be true that the transmitter is not at fault, something is gained by jumping up and down and declaring this fact in angry terms. For some years now, t.v.i. (all kinds) has been far more a public relations problem than a technical one. We know that t.v.i. can be cured and that often the cure must be applied at the transmitter. But the person who doesn't know it, and you will get nowhere in convincing him, unless you are willing to lean over backwards in the matter of neighbourly co-operation.

Rule 1: Don't let t.v.i. drag on. If you know you have it, get to work. You have to convince the t.v. owner that you are at least interested as he is in clearing up the trouble.

Rule 2: Never lose your temper. Once you know your neighbour starts shouting at each other you are done for. No amount of anger he gets, you must keep cool. Better yet, keep friendly.

Rule 3: Learn the causes and cures for t.v.i. Be sure you know what is actually causing the trouble and that you know how to fix it. The initiative and know-how must come from you—the owner or the serviceman will almost certainly be of no help.

If you cannot obtain the co-operation of the neighbour, you should enquire of the services of the local police, your local magistrate.

From the July issue of the "West Australian V.H.F. Group News Bulletin": "The committee of the Group announced that the winner of the Parkes Trophy for 1964 is Charles GLZ. This award was made for Charles' work on 144 Mc. tx and rx in particular. The co-holder of the present VK5 record for 432 Mc. tx and the holder of the Australian 576 Mc. record. Sept. 12-13 is listed as a V.H.F. Field Day in VK5. 6KN reports Channel One was around on Sunday July 19 at 1410 hours A.S.T. A coincidence being that in 1962 on July 15, 50 Mc. was open from VK5 to VK2, 3, 4, 5 about the same time." This issue contains the constitution of the W.A. V.H.F. Group.

V.h.f. Group, which could be used by any Group wishing to cover these same objectives. Keep up the good work, VK5 V.h.f. Group.

Further news has arrived regarding the new 144 Mc. record between WE6DNG, Long Beach, California, and OH1N in Finland, which resulted in a new West Coast record. The Finland two-way QSO was on 50 Mc.

It took place on April 12, 1964, and represents the longest 2 mx QSO by Moonbounce. The gear at WE6DNG comprises eight 7-element Yagis stacked 4 x 2 with an "honest" gain of 14 dBi per band. This can be elevated in angle above the horizon to 45°. Some 59 dBi antennas were tried in the course of their attempts and the one used found to be the best. The transmitter was 1000 watts c.w., the receiver a 416B pre-amp, to a nuvistor converter and a 75A4 with noise blanker and limiter. The antenna used is a 20' element collinear, 2 mx converter into CR100 receiver and the transmitter 600 watts to a pair of OB300s. Sigs were S2-3 both ways.

The effort took place over a long period of time, although signals were heard on many occasions. No two-way contact was made until April 12. WE6DNG found that contacts were best when the moon was high and the air clear. This is in line with previous experience which suggested that haze disperses the signals. The big question was polarisation; both normal vertical and horizontal and circular were tried and echoes from the moon were received by all types, however horizontal polarisation was used for this effort. Our congratulations to all concerned and trust that the Amateur spirit will continue with "bigger" and better DBP for those who try next.

Your scribe would like to be heard from any v.h.f. visitor to Melbourne. When in Melbourne contact me by phone (home) 35-8571, (business) 307-3341 (9-5). Any news items will be greatly appreciated. Your Group Bulletin or Newsletter, and individual items of interest would be most welcome.—VK3ZGP.

#### NEW SOUTH WALES

V.h.f. F.m. Activity in VK2: Frequency in use is 146.00 Mc. and we have now started putting in our number 2 channel, which will coincide with VK3, 6. 145.85-145.95 Mc. and a few are already on the second channel. We anticipate putting the second channel off the air for the whole period of Oscar III's flight, since its beacon transmitter is only a few kilocycles away.

Main make of units in operation is the T.C.A. which uses 4/10 m.s. and a front end matched rx. Given around 20 db. operating for 1 u.v. amp, plus to help things along, most of the net have installed either series cascade front-ends, or Nuvistor pre-amps, giving as good as 0.1 u.v. sensitivity in the better units. Polarisation is vertical, and base stations run up to the full 150 watts.

Numbers are rising quite fast now. From the first two (2ZSE, 2ZBL) over 12 months ago, we now have about 30 and most of them mobiles, with at least five more to come on in the next couple of weeks. I'm quite happy too, as we have a new repeater operator, rig going—23 transistors, 6.4 u.v. to open the muter, and 700 milliwatts output from the rx, using nickel cad. batteries, which gives up to 10-12 miles whip to whip.

There is no 6 mx net here, and no move since the one original 6 mx operation is very spasmodic. 73, 2ZBL.

Your Sub-Editor (2ZGP) has received a copy of the V.h.f. Newsletter No. 3, a monthly publication of the VK3 V.h.f. Group. Unfortunately it arrived too late to disseminate it for items of interest, but a quick run through of the contents shows that it continues in the tradition of the Group, through its Editorial Staff, has the makings of a really interesting Newsletter. Those interested should contact the V.h.f. Newsletter Mailing Dept., C/o Horrie Lapthorne (VK2HL), 523 Pacific Highway, Artarmon, N.W.S. The annual subscription is 5/-—2ZGP.

#### VICTORIA

Over the past month all bands have been fairly inactive. A new net has started on 6 mx, the Western Suburbs Net, and at the time of writing they have not had any complaints of t.v.i. Cyril 3ZCR, Les 3ZPB and Vic 3ZPV

are putting the finishing touches to 6 mx tx's, each will be running about 30 watts.

Fox Hunts: 2 mx Fox Hunts are held every third Wednesday and are usually attended by five or six hounds—these are getting more popular.

6 mx Scramble: The last 2 mx Scramble, held in Melbourne, saw the total of 28 stations. The winner was Ken 3ZWNJ who worked 19 stations in the 30 minutes allowed.

3 mx 3TR and Geoff 3AUX can be heard on 1296 Mc. They are tripling from their 422 Mc.

A tape of a lecture by an R.L. from the Department on T.v.i. will soon be available for loan from the VK3 V.h.f. Group. 73, 3ZCK.

#### QUEENSLAND

Last month a number of new call signs appeared on the v.h.f. bands. Jim 4ZA and Walter 4ZWP have both made intelligible noise on 144 Mc. Ross 4ZRD and Reg 4VX have made their debut on 52 Mc. Reg 4VX also takes part in informing us that he is genuine refugee from a 29 mx sidebar. Walter 4ZWP is operating from St. Leo's College at the University of Queensland. Space is a problem and at the moment he has to fire through 40 feet of concrete to have a contact. There is no evidence here to support this. Put the ground plane low and the 4ZWP will fall right.

Ron 4ZK will be operating from VK3 on 52.2 Mc. every Sunday afternoon and evening from November onwards. He will be using 100w, and will be looking for contacts.

Tom 4ZBH and Phil 4ZEP, although not new to the bands, both have made recent contacts on 2 mx. We also expect 4OS, the Oakleigh South Amateur Radio Club, to be active in the near future. John 4ZWB is having trouble with QRM. Although his QTH is Dalby, about 25 air miles from Brisbane, one evening he had a hectic time trying to sort out the call signs calling him on 2 mx.

At the moment Roy 4ZRM is having a bad leg. However he has a broken leg to keep him occupied and this is the reason for his stay at home. Roy has been on the air for quite a while now and suddenly he has V.I.P. trouble. However it seems that his tx was clean, but the 65 Mc. spurious was coming from his modulator.

What has become of the chap up in Ipswich? Tom 4ZAL has had his bird perch in that direction but reports that he doesn't hear anything. This is a quiet spot, about 60 k.m.s. f.w.s.'s in Ipswich and to date more than seven persons are known to be listening around the 6 band.

The Jamboree-on-the-Air looks like being something of a bust this year. In particular, Vince 4V1 and Bob 4ZBZ will be operating from Mt. Cotton and Mick 4ZAA will be at the Sandgate Scout Hall.

On 6 mx virtually all the activity is between 52 and 53.3 Mc. here in Brisbane. We are sketchy reports from the south on frequencies we use there, but if you are interested to learn more accurately of these frequencies so we will know where to look in the DX season. This applies particularly to VK3, 73, 4ZPL.

#### SOUTH AUSTRALIA

Our usual correspondent, Al 5EK (formerly 5ZCR), having now been firmly attached to the ball and chain, is at present absent, enjoying the love and attention of a honeymoon. Rumour says he is probably headed towards VK5 land. Wish you well Al and your v.h.f. notes will still be available for you to do when you return, dishes permitting. In the meantime, I shall do what I can to fill the gap.

5 Mc.: Activity still seems to be at a very low level. Admittedly S.A. has had more than its share of gale-force winds, heavy rain, plus sundry frosts, enough reason to keep many from venturing to the shack. Some are finding cross-band contacts to 5 Mc. difficult in attempting to break through Channel 6. This does seem to be more pronounced where converters use an i.f. of 7 Mc.

No DX has been reported on the band since changing from 50 Mc. The report of the long-recent contact being made was between Herb 2NN and Mick 5ZDR, a distance in excess of 200 miles, signals 5 x 5 each way, and

#### THE BEACON BOX

##### VK5VF—

6 Metres — 53.000 Mc.

2 Metres — 144.800 Mc.

One call on c.w. then carrier for 40 seconds, then repeat, etc. Operation is almost continuous.

##### VK6VF—

6 Metres — 52.006 Mc.

2 Metres — 145.060 Mc.

Automatic c.w. identification with approximately four seconds key-down position. Operation: continuous.

##### VK3: AT6V—

51.75 Mc. f.m.

0900 - 2300 hours daily.

100kw. e.r.p. 2600 ft. elevation)





# FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

## FEDERAL

### I.T.U. FUND

As agreed at the last two Federal Conventions, Divisions were given target figures to meet towards financing representation at forthcoming I.T.U. Conferences. To date, the percentage of the target figures met are shown by States:-

VK2	-
VK3	25%
VK4	23.6%
VK5	-
VK6	21%
VK7	-

The above figures represent monies received by Federal Executive and not necessarily monies still held by Divisions.

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## FEDERAL QSL BUREAU

Bob KSMOK requests the assistance of any VK Amateurs equipped to take part in the Moonbounce project. Stations would need the equipment for 12286 Mc. with at least 100 watts and a good antenna. He points out that starting results have already been achieved on lower frequencies and cites 144 Mc. contacts between W6DNG and OIIHNL last April by Moonbounce.

The Korean Amateur Radio League reports progress and now has 400 members, 190 licensed and 60 Amateurs. Their plan of operation in April 1965 includes sending photographs of typical Ham Stations. Photos should be 15 x 20 cms. Secretary is HMAIJ, Box 162, Seoul, Korea.

E. R. (Bob) Matherley, VK9R, ex-G3PJV,

is currently on Norfolk Island on 14 Mc. c.w.

Bob expects to be on the island until at least January 1965. QSLs to Box 34,

Norfolk Island. VK9RH also been heard on s.s.b. from same location.

ZL2ASM, Rex Glew, of Waiauora, N.Z., expects to be resident in Melbourne for about three years from a date in 1965. Rex will lift out a VK license.

Activity from Nauru is expected shortly.

VK5NP presently en route to the island will serve two years in the area as a coastal radio operator.

G3ZK is in Saudi Arabia for a period of several years and activity is soon expected on s.s.b. with a beam. Expeditions to neighboring countries are also planned. His call will probably be Z2KE.

Spanish Bureau Station EAJ1, Radio Barcelona, is celebrating its 40th anniversary on 14th November, 1964. Amongst other celebra-

tions is the award of a Diploma for Amateur operation. For Oceanic the award may be given to those stations who have made contacts with stations who must be situated in Barcelona, Tarragona, Lleida or Gerona. Contacts should date between 1st June and 30th November, 1964. Award is also available to s.w.l. Full information from this Bureau or from EA3GI.

QSL traffic through the Bureau nosedived steeply during July when only 3,000 cards were handled.

— R. Jones, VK3RJ, Manager.

• • •

## NEW SOUTH WALES

### HUNTER BRANCH

Here is a warning to all those who would attend an auction sale. Take more than thinking with it. It is not the things to keep bidding when this is all the cash in one's possession. It certainly was the case at the August meeting of the Branch, held on Friday, 7th, at the Technical College. Members had been warned to bring their

### SILENT KEY

It is with deep regret that we record the passing of:-

VK2VO—Vol Molesworth.  
VK3JE—W. (Bill) Alder.  
VK3NZ—R. H. (Bob) Hall.

money but few had brought sufficient to purchase some of the exotic items of gear which were on offer. Gordon 2ZSG, a quiet man at heart, became silent when an auctioneer began his speech especially when he held up the hammer. As a result, many were the rude remarks passed to poor but honest members with only all told, twenty attended and there were forty-plus items sold. Some of the gear went away in hands from those which brought it. Lionel 2CS was the lecturer for the night and he showed and explained the mystic workings of a receiver with a most frank and simple manner.

There are those among us who do not have to do any soldering and at least one clerical

gent has followed the string to the back of the lounge chair, finding a Swan Transceiver at its termination.

If you were not already aware, the Hunter Branch Convention is only about four weeks away and, as before, this will be a three-day affair. The festivities commence on Friday, 2nd October, in the usual meeting place at the Tech. College when constructional competition will be held. To enter, members must be prepared to display and describe some item of home-built equipment which has not been shown previously at a Branch meeting. The committee is to decide which item deserves most praise and commendation before it goes to the successful candidate. Even if you can not use a soldering iron, you must be able to eat, and persons with this ability are invited to be the guests of the other gourmets at the Annual Dinner to be held on Saturday, 3rd October, at the Prince of Wales Hotel, Mereweather. The delicacies will be ready by 7.30 and the charge will be less than one folding pound per person. To make the whole purposeful and interesting, a sum of money will cover cost of attending at the Field Day on Sunday, 4th. This surely must be an encouragement to all the MacSutherlands and O'Halls to come to two events for the price of one. Those who are interested in the price of one, please note the same table as we shall be given a place on the same table as well as we shall have to pay the same amount for the Field Day only! What a cunning stratagem!

One of our YL Amateurs—and it should be easy to guess who, has been having some trouble with modulation when calling back to Marmong Point transmitters. The new valve cured the trouble (fancy not knowing when a filament is not alight!). The 80 m.c. transmission from 2AWX is not well received in the local area of recent weeks and there are a number of reports of interference from ZLs and interstate stations on the same frequency. For those who experience such difficulties, there is a good signal on 1820 kc. from 2AWX due to interference and fading. Many of the local stations use the frequency and report good strength. Because of relaying problems, the news from the v.h.f. outlet via Z2SG is now from tape, prepared prior to the broadcast. This has meant a much improved signal on 2 m.c.

It was pleasing to see so many of the Cessnock boys at the last meeting. Their club station 2AZX has been on the air frequently during the past few weeks with good reports. However, the remark made by Sherwood, "See you on the air," was the funniest I have heard for some time. When asked what had got him in a tizz so that he may carry out this threat,

David ZXZA has been notified of his success in the recent Morse test and he is now anxiously awaiting the issue of his full call, which may even be on the air by the time you read these lines. As well as the new 2A1X, the new 2UH, the new 2A1M and the Upper Hunter with the call 2GVL, has done remarkable things with the rig and now has a super signal on 80. Frank 2FCZ also has chased all the things out of his band and is a 5 x 4 as far as me. Jack 2AJY has reported to be considering a change of QTH and may be close enough to attend the meetings soon. Paddy 2AXU has done some remarkable things with aerials and has a greatly improved sig.

Membership at the Westmeade Radio Club has increased again and all is well, there must be a new batch of calls at the end of the course. The transmitting station at the Club is now on the air and has had some fine reports. It is said that Harry 2AFA called CQ the other day and this may be a very good

omen. But on which will confound even the experts is the receipt of a card from Venezuela for 2AKX addressed VK2PMU (try 2AKX). Will I am you, am I as saucy as all that?

The September meeting, on 4th, will feature four lectures and should be of interest to all. Remember, Room 8, Classroom Block, Newcastle Technical College. See you there. 73, 2AKX.

### CENTRAL COAST ZONE

About 25 members and wives from the Gosford Radio Club had a most instructive tour round the Vales Point generating station recently. This was followed by a picnic lunch on the shores of Lake Macquarie Derby. We saw several 320 megawatt power transformers which didn't take up overhead room. However they stepped up the voltage from 16 kv. to 33 kv. and that's a few watts! The place contains 100 tons of concrete and 100 tons from the highly-reverberant nearby coalmines. Everything is conveyor belts and I understand it will need about seven staff when completed. Can you imagine electric precipitators working on 16 kv. and 100 m.a.? That would cause a bit of QRN if it provided by mistake! I would think. With all that power, don't you consider 150 watts is a bit light on?

### OBITUARY

#### VOL MOLESWORTH, VK3VO

It is with sincere regret that the VK3 Division announces the sudden passing of Vol Molesworth, VK3VO, who died at Prince Henry Hospital at the age of 39 years.

Vol was a Past President and Councillor of the N.S.W. Division and for the last three years was Secretary of the Disposals Committee.

Vol was a Master of Arts, Lecturer in Philosophy and Logic, Lawyer in Business Administration and author of many papers on Philosophy and Logic.

To his sorrowing relatives we extend our deepest sympathy in their bereavement.

The club was grateful to Norm 2ALJ for a lecture on v.o. stability, and a visit from two members of the V.h.F. Group in Sydney. Our next lecture on "Undersea Cables and Their Construction" by a P.G.C. man should be very interesting. Len 2AMU has been working DX on 14 mcs. from the shores of Tuggerah Lake and plans for a beam are being laid. Frank 2ACQ is returning to Umina in the near future—it will be lovely to have the chief of numerous transmitters on the air again. It will be within shooting distance of Ron 2RV at Ettalong. Harry ZLX is continuing the contacts with Antarctica. His TA3 and wind-up tower makes things very easy. The 80 mcs band has been showing some long-skip conditions resembling 40 metres laterally. To work into Newcastle (40 miles distant) requires the use

## HUNTER BRANCH

### CONVENTION

2nd, 3rd & 4th October

- ★ Constructional competition.
- ★ Annual Dinner at Prince of Wales Hotel, Mereweather.
- ★ Field Day at Marmong Point, Lake Macquarie, comprising Scramble, Tx Hunts, Launch Trip, in fact something for everyone at VK2s most popular Convention.

Full details in the September Bulletin.

of 160 metres on some nights. This must certainly be near the sunspot minimum. Heard 2MTR on the strength of it.

Wally 2ANH is back on 80 using an AT2I. A couple of filters give complete freedom from t.v.i. One is a double half-wave 3.8 meg. tuned model, incorporating three series-tuned traps for Channel 2. The other is a regular trap-and-pass model which commences at 34 mega. George 2ADZ is having a spell in Concord Hospital, we wish you a speedy recovery George. Phil 2TX is planning a house on his Arcadian location and after that a beam antenna. Alex 2AK and I would rejoice when the freeway into his onward progress is completed. At the moment the only free item is westerly wind and there's been too much of that. Antenna rotators and GSRV radiators are the chief sufferers.

You may be searching for information on Deyan's indicators and their power supplies in preparation for use on the cubical quad. 73, ZON.

## VICTORIA

### WESTERN ZONE

Trev. 2ATR, Warracknabeal, is on a.s.b. with a home-built Heathkit. He has also taken to flying and has now approx. 20 hours up solo. Roy 3AO5, Telangant East, has also taken to the air. Jim QTRM has also taken to the air. The radio club in the town of Ararat is still in operation once again after a temporary lapse due to a staff problem. The operation is only among the basic principles at the moment, with one bit of s.w.t. We have had gear on the air and have had no trouble with the fringe here. Hope to have representation at the next Convention along with portable equipment for one or two school field days. Received a QSL from 4X4LN—no envelope, no stamp, though for the local authority free passage all QSL traffic.

This scribe was run out of Keith, kept on upstaging Bourke's Law, trying to get on to the Wednesday night Zone hook-ups. New QTH is now Laffer, about midway between Keith and the Coorong; only on 32v., but no t.v.i. Should be on 20 and 40 with 50w. soon. Already on 14.5 Mc. mobile and a similar set-up on 3.640 Mc.

The members will regret the passing of Luke SLL, who only a matter of weeks prior had asked me to pass on his best 73 to the Zone.

Tony 2ZAI, Bordertown, has done a magnificent job in building his own brick home although I understand he has a little harmonic problem lately. Hope to hear some more activity radio from this QTH. Not quite as fluent as Pansy, so best 73, Barry 2YB.

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## QUEENSLAND

### DIVISIONAL COUNCIL NEWS

R.D. Trophy: Laurie 4ZGL reported that Chandlers Pty. Ltd., a large electrical organisation based in Queensland, had agreed to display the trophy in the display windows at all their branches. Various suburbs of Brisbane will be included and the trophy will be shown for about two weeks at their branch stores in the larger country towns. This should give many more people the opportunity to see the result of their efforts in the Contest last year.

New members are being approved at the rate of about seven per month. It is also apparent that many of the new members are from the country. Recent applications for membership of the W.L.A. have come from places as far afield as Rockhampton and Moranbah.

Peter 4PJ gave a report on the Federal Convention and most of this report was printed in "QTC". Laurie 4ZGL has assumed the office of Federal Councillor and one of his first duties will be to arrange accommodation for the Federal Councillors and Observers from other Divisions who will be visiting Queensland for the next Convention.

### JULY MONTHLY MEETING

Attendance figures for the monthly meetings have been very pleasing. In July, when it has been winter (and we do have a winter in the Sunshine State), 60 members attended the July meeting. Peter 4PJ was asked to give a report on his trip to Mt. Macedon in VK8 which he had recently made. Councillor 4ZGL said: He was lavish in his praise of the accommodation and general routine of the school. When the meeting was closed and all general business had been dealt with, Vince 4V3 arose and was presented with a gift of an informative lecture on the antenna theory and practice. Most of the lecture was given in the dark while slides were being shown, but it was observed that every person present was so interested that no one tried to snatch forty winks during the evening!

### IPSWICH DISTRICT RADIO CLUB

This Club seems to be one of the most progressive. Bill 4A001, the publicity officer, has been doing a fine job in sending news for inclusion in the Sunday "Ipswich Advertiser" from 4WL. At the first meeting for the year 1964-65 a patron and three vice-presidents were elected. One vice-president elected was the Mayor of Ipswich, Alderman Finnimore. There is more to the story and I think you might take note. The Ipswich City Council supplied the members of the Club with free QSL cards which, besides having the necessary information on one side, they have a full colour photo of the Ipswich skyline on the other side.

The Club now has new rooms which are situated at the QTH of Warren 4GT. Warren has spacious room under his house and the work benches are well equipped with soldering

irons, drills, etc. This equipment is mainly used in conjunction with the A.O.C.P. classes that the Club holds. The Club hall is now in the vicinity of 47 members. While on the subject of Ipswich, please don't ask Henry 4HC how many c.w. contacts he has had. Although Henry has been on the bands for a number of years now, the answer to the question would be a positive integer which lies in value between zero and minus one.

### QUEENSLAND YOUTH RADIO CLUBS

Regular news items from the Youth Radio Clubs have been established in "QTC" and frequent reference is made to the activities of the Clubs on 4WL. Most VKs will know what is going on in the State along the lines of the Youth Radio movement (i.e. if they read "QTC" or "A.R.C." publications).

So most of the following is for other interested persons and to let the southern boys know that the spirit of Youth Radio is very much alive here in Queensland. At the helm is Charlie 4V2 and 4DX has undertaken the job of official examiner. Apart from Radio theory and practice, the club members seem to learn to run scavenger hunts.

One of the main problems with Y.R.S. clubs is obtaining old unwanted items of gear and components. Old copies of such publications as "A.R.C." would be welcome. In fact any of the older radio magazines which are no longer required would be very welcome. A supply of Elementary Certificates has arrived and have been inscribed and presented to those who have passed them in the first Youth Radio Club certificates in VK4.

Enquiries are arriving from far afield about the Y.R.S. and a booklet with information on the scheme is available for those interested. Clubs have been formed at Wavell High, North Rockhampton, High Camp, South Doncaster, Gymea, Cootamundra, Fudina College, and the De La Salle College. Bob 4RW, perhaps you can explain the lack of Youth Radio Clubs activity in Townsville!

By Sept. there will be four transmitting Y.R.S. stations in VK4, 4DS at the De La Salle College, 4JW just before transmission and naturally their first contact was with 4W1 on their opening day. 4RP from Cootamundra operated from the Redcliffe Show on 17th and 18th July. An attractive feature was a backdrop board displaying QSLs and Y.R.S. Certificates. Despite noisy conditions, 25 contacts were made.

### GENERAL NEWS

In the last issue of "A.R.C." nearly every Division expressed hope that they would win the Q.D. Contest. The large volume of publicity for the Contest by the Coordinator is a guide to the end result, then I fail to see how any other Division could possibly have a chance of taking the trophy away from us. Anyway, we hope the trophy is here to stay for a while but only time will tell.

Who is going to be first to hear 4WQ, the Bundaberg Amateur Radio Club Station? Back in July, the tx, ART and power supply were installed but has the call sign been heard yet? Incidentally, I believe Jim 4J4 has had trouble with pigeon lofts, both here and in Melbourne. At a certain working bee, Rusty 4JM acted

### Wireless Institute of Australia

#### Victorian Division

### A.O.C.P. CLASS

commences

MONDAY, 19th OCT., 1964

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—Secretary W.L.A., Victorian Division, P.O. Box 36, East Melbourne (Phone: 41-3555, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.

as a capacitive coupling between the ht. of the rx and the coil box. He assumed those people who thought that the rectifier was working well as it definitely was pure d.c. going into the coil box!

For some time now, Council has been looking for an Editor for "QCTC". Judging by what we have seen in the last few months, members who have the ability to talk with authority and at great length on the subject of Amateur Radio. So show your skill at presenting Amateur Radio news to the members via "QCTC". To those who do not know, "QCTC" does not stand for "Queensland Turf Club".

Jamboree-on-the-Air time will be around again in about a month's time. The July issue of "Queensland Scouter" carried two pages on the Jamboree. One page concerned itself mostly on the interesting contacts made on the air last year. Who will be on the bands this year helping the Scouts along?

The 1964 Sunshine State Contest went off quite well in the morning, and apparently a bit slow in the afternoon. Council would like to hear your ideas on whether it may be a good idea to stop about noon next year. I see where Vince 4VJ and Al 4LT were looking over the Mt. Gambier Scout Camp "Kangaroo" site.

It seems that they are operating a portable camp now doing the interesting contacts made on the air last year. Who will be on the bands this year helping the Scouts along?

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I will close the news for this issue with an item of news which should cheer up Fansy SPS no end. I wonder if he reads the news from other States? Vince 4VJ and Reg 4VX well known 20 mc sidebanders have just appeared on my mail with that old-fashioned mode of telephony! I have to share SPS' thoughts on s.a.b. since I don't even own a b.c.o. To prevent any thoughts that Bill 4ZBD doesn't own a b.c.o., I would like to add that he has a 4ZBD and supplies all the parts printed in this column and his name goes at the end of it, but anonymous me just puts it into some readable form (and occasionally makes comments about s.a.b.). 73, 4ZBD.

#### TOWNSVILLE AND DISTRICT

Very pleasing to see in August "A.R." that the Publications Committee had published the two exerts from the Queensland papers. It only goes to show that we all should watch the papers for news and information that may be of the best advantage in regards to our hobby Amateur Radio.

Certainly PanSv did not miss out in forecasting the latest trend in men's fashions, while our worthy Editor copied it off.

Only visitor from the north this month was Newton 4BQ on his brief visit to the North to escape the rigours of the southern climate. Charlie 4BQ acted as official while he was in the district, showing him all our latest industrial projects. Newton was awed by the large town in Charlie's backyard, first impression was that it was the new Channel 7 mast. Charlie was hoping to work the world on 7 Mc. with the new quad he is constructing.

Hope to hear signs on the v.h.f. band now that Basil 4ZW has come back in town, having left the city of "sin, sweat and sorrow"—Rockhampton. Sorry to report that our prominent s.w.l. for the north, After Westcott, is in hospital in Cairns with a severe bout of pneumonia. He has been using a pin cushion till he leaked and had to be put on tablets to plug the holes. Basil 4ZW, together with the rest of the locals there, are constant visitors. No truth in the statement that Basil intends to get married, he says he is only keeping it going condition.

Claude 4UX growing not enough time to play the bands, what with sitting in the super-tech chair and plenty of overtime, hoping that the unseasonal weather will be kind to the stars and not so much sickness. Trying early to get the locals organised for the Scout Jamboree-on-the-Air in October and has earashed all the locals to be on for "R.D." and not fail to submit their logs. Muriel continues the results and bears chaps on the air, swapping numbers and tries hard to forward their logs (what a shame, it helps the other State wins).

Notice lately the growing crowd of commercial on 14 Mc. some Sunday mornings. Honk Kong overseas terminal can be heard testing with spots every 50 kc. from 14100 up to 14350 kc., and loud enough to wipe out KVRHRI signals in the house-to-house. Contractors to the local photo covers of "A.R." with four XYLs—their ranks are growing. Will soon have to hold their own "convention". Maybe I can get a cuppa from Muriel? 73, 4ZW.

gathering of members than is usual. The reason for the poorer than usual attendance is a bit hard to explain, certainly it was cold, but by no means as cold and unpleasant as it has been this month, and it can only be presumed that the name of the technical lecture forum was even more than a few words.

The guest speaker was Mr. Melville, and his subject that of Xerography, and in case you might be tempted to think that I have descended to the use of bad language, I will repeat, Xerography which is the basis of the process used in myself, known as Electrophotography. Now it is a peculiar fact, every once in a while we duke the perfect lecture, the perfect lecturer, and the perfect subject, all of which adds up to a most successful entertainment even though the subject is only remotely connected with our hobby of radio, and believe it or not, we always manage on these nights to have a smaller or considerable audience than the ones that turn up.

I would rate this lecture on Xerography as one of the best, if not the best, in all the years of our meeting nights, and no words of mine could ever do justice to his superb talk. His desire to help us on paper the intense and rapt attention of those members present during the entire one hour and a quarter's practical demonstration of this interesting subject. Questions came quick and fast, and the answers were equally sharp. Diagrams, R.D. Contest log sheets, and a variety of material were photographed and copied on the spot with a rapidity that had to be seen to be believed, and the night was brought to a close with the presentation being in a somewhat "well-qualified" condition. Brian STN proposed the vote of thanks to Mr. Melville with a few well chosen words and the applause that greeted the lecturer must have been unanimous. In fact his efforts were all a winner, and once again I must say that those who stayed home missed the meeting out of a box.

Very little business was transacted, with Mr. Federal or Divisional, although the President, Phil 3NN, with what definitely looked like a leer in my direction, announced that Council had tentatively booked a holiday house, Melville House, to write a National Presidenteller, for the week-end of September 28 and 29, for the purpose of setting up an instructional-construction week-end on single sideband trans-

mission and reception for any who might be interested. This is something new as far as VK5 is concerned and it will be interesting to see the interest and response displayed. Incidentally, it is proposed to build a transmitter at the camp and get it on the air on Sunday at 1200 hours, and it will be open house to visitors, the rest of the afternoon will be spent demonstrating s.s.b. DX, or that is what my instructions states. Remind me to set up my battery of Ford spark coils in opposition on 20 mx!

Quite a gathering of old timers noticed at the meeting. Roy 3DA (Buck to you), Tom 3L, John 3KX, and that handful of debonair and athletic type 5P7—all well, perhaps i won't go on—my natural modesty has come to the fore!

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#### SOUTH AUSTRALIA

The monthly general meeting for July of the VK5 Division was held in the clubrooms on South Terrace to a somewhat smaller

Heard Len SZF and Leith SLG having quite an interesting discussion as to why the plates of Leith's 60W's were blushing with shame or mortification. I was particularly interested which Leith remained quite unconvinced despite the obvious suggestions from Len and was apparently prepared for supernatural causes. Personally Leith, they reminded me of the old fire bug who outside our meeting place. Remember? Hi.

Len SZQ had his private grizle—it appears that the "juice" had been turned off once or twice on a Sunday morning at his QTH, and he was sure that it would be turned off again on the next Sunday—Leith, who signs the time book with the purveyors of the aforementioned "juice," suggested that one or two people in the vicinity of Len's QTH were not passing their bills and this was a method of bad ending for Len, met with the reception it obviously deserved. In fact from the noise on Len's transmission he was performing a fandango in series parallel on the shack floor.

I did not include Harry SMY in my list of cloddish operators at the meeting mainly because he was dashing hither and thither scoopin' up the old shekels, and nobody would have

believed me that he was an oldtimer, going on the agile and youthful manner in which he was racing around the floor. Bad luck he was not there for the training in a saloon—he has not been on c.w. since—in fact he has not been on—period.

Bob SWK, according to my usual reliable informant, is in the throes of house building. You have my sympathy OM, I am in the same boat, though my family reluctantly re-furnished, to say nothing of knocked down and re-built, and that is enough for me. As fast as the water flows into the moat, the drawbridge breaks down and I have to empty the most again to let the retainers return from the village. A frustrating cycle. I can assure you, to say nothing of the water rates.

The mentioning earlier of oldtimers reminds me that I heard two genuine oldtimers on 80 m recently. Bob SBC and Ed SMY. The latter little chit gave me quite a few nostalgic memories—real old Amateur Radio at its best. In fact I did not hear them mention once anything about the square root of the hypothesis of zero bias of the linear obtuse transistorised thingamabob. Quite a relief I can assure you!

Col SCJ also heard on 80 mx recently. He seemed in good form and quite able to hold his own in any company. I was sorry to hear him say that his typewriter had broken down and he was using a typewriter back in use. How subtle can I be Col. Hope to hear you soon! Now, take it easy.

By the way, did you cop the photo of the "Holler than thou's" on the front page of the magazine in July? No price was mentioned on the head but they would be lucky to bring two bob, including postage. What was the biggest blow to me is I looked at the photo through my dark glasses, was to see the way the VK3s and the VK5s were intermingling, and judging by the bemused looks on their faces, apparently enjoying it all. All my years of propaganda going up in smoke—the only redeeming feature being that Pincott (SAF) was not present. I will bet no photo! Another thing that upset me, two Conventions in the pipeline. If one is not enough! You don't believe me? OK look at the fourth block from the left in the back row. It is listed as Les 3XM, but they don't fool me—I know these VK5s. Joking aside, it must have been a wonderful Convention at Hamilton especially as it was planned, it just happened. The only thing I have against it is that it was not an a.m. convention! Confidentially, between you and me it was the biggest blow to my morale when my XYL used my coherer for a salt shaker.

I had hardly posted last month's notes away when I received a letter from Uncle Tom STL confirming the reported news that he was now down in the big smoke and was not residing at the Glendon Industrial Home mainly because he was too old, or so he informed me. He is in the throes of getting back on the air and probably at this being as it is thumping the key and using the microphone both together, trying to make up for lost time. Nice work Tom, what did you do with your cabin?

Brian SCA displayed his recent purchase at the meeting, a pi coupler, with pardonable pride and enthusiasm, then left the room only to return later and the same second purchase in the land of the missing. His efforts to find the "missing purchase" became so frantic that the guest speaker, Mr. Metcalfe, finally gave up in despair and suggested that if Brian was looking for an asty try them out one at the rate of a bob!!! The face and unshaven face of Brian to hear his recent purchase described as an ashtray was worth coming miles to see, and having found his recent purchase he vanished into the night, no more to be seen.

Noticed in a popular magazine published in VK3, which will remain anonymous—anoncannonny—well anyway it will remain a secret reference to the VK5 Division, including a list of the office holders. Preening myself and the rest of us, of my waxed moustache in anticipation of seeing for the first time my name and call sign in print in such an illustrious publication, I was cut to the quick, and other places, to note that no mention whatsoever was made to the Divisional Public Officer, the Divisional Secretary, the Publicity Officer, the Magazine Scribe, the Recipient of most of the Divisional Confessions, to say nothing of Odd Job Man and Chief Interruptr at General Meetings. I can only assume that he failed. Just think of the Publicity Officer and could not manage to get my name into print. Ple up me. Some say "Good Old Piercer 2AFP"—"What do the mob say?" Come, come, let us not be coarse in our thoughts toward our fellow hobbyists.

Some time ago I commented in these notes that the VK5 official station SW1 must be something of a headache to the Council in view of the fact that the VK5s, being part of the uncertainty and somewhat lack of organization being exhibited. A recognised axiom in this world is that if one criticises, one must also be prepared to praise, and with this in view I have had the pleasure in thinking around oodles of praise for the overall organisation and running of the session on Sunday these days. The praise of course must be equally shared by John SLV, Brian STN and Grahame SVA, a number of stations participating in the callouts, sufficient indication of the present popularity of the session. Nice work fellows, you may all take a bow.

Throughout VK there are several public spirited Amateurs who conduct Morse code classes on the air for the benefit of those who want to secure their License. We salute these chaps for their unselfishness, but we certainly do not want to see them being rung up on their frequency and carry out their on-the-air tests to the detriment of the listener who is struggling to copy the code. It is all right for the QTH maker he already has a license, but about the trials, who at times has to sit back and twiddle his thumbs until the QRM ceases. Personally I could not think of anything more frustrating, especially when a little thought on the part of the QRM maker would prevent the whole. Here's hoping the offender will check the frequency of these code classes and do the right thing. After all, most of it is only want of thought.

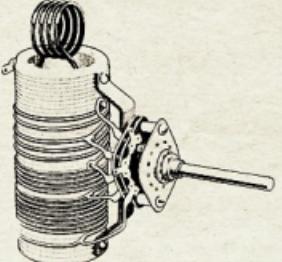
This month, in one way and another, has not been a good one for me. Returning from the place where I sign the time book with shaking hands, the other night The Board of Control informed me that the letter from VK5 had arrived in my mail the day before, rocketing in great care for time bombs, red backed spiders, boa constrictors and other well known methods of extinction. I was amazed to find that it concerned the Divisional Audit and balance sheet of the VK5 Division. As far as the audit deference is being paid to an ex-VK3 President (if only for a short while) and I lit the hurricane lamp in the sitting room and settled back on the kerosene case to indulge in a little reading. The contents of the annual feelings of pleasure were soon dispelled as I noted with dismay that whoever was responsible for sending me the letter had gone to the trouble to underline with ink the name of Ken 3AF every time it appeared in print. Never in my life have I seen the same name bolded so often in a report. It was like the Scarlet Pimpernel, I saw him here, I saw him there, in fact I saw him everywhere, and the more I saw him the more my blood pressure rose. One statement I wish to refute and quote "Ken Pincott, VK3KAF, member of A.R.C. Committee and a Divisional Councillor, attended at his own expense, etc., etc." an amateur ad nauseam. At his own expense is right. My information is that the reason for his attendance that he rode a bike across to VK5 for the convention, and Joan and the Princess ran all the way across alongside him, carrying the luggage. Well, that's what I was told anyway. At his own expense, all right. All he needed was enough hot sile to keep his tyres pumped up again. Oh dear, oh dear, why do they send me these letters?

A few years ago I went to live at Henley Beach and the first winter spent there was admitted by the local inhabitants to be the worst and roughest winter ever experienced. One of the locals told me with his tongue in his cheek that this winter due to the sea change exception to the newcomers in the district and expressing its annoyance. Well, this winter has been one of the roughest for many years and the damage to the seafront has been terrible. With the above situation in my mind, I can only assume that the ex mayor of Lucindale, Arch 5XK, had at last settled in at the seaside resort of Semaphore. Now don't argue Arch, these local identities know what they are talking about, the sea is certainly a good judge of human nature and has definitely excelled itself this time. And the same to you!

Noticed in the magazine, in the column of that old key-thumper Ray 3JR. Oh yes, I read now that again he can one up during the long winter? that shows, cause he can do a Fandango on his sleeping bag. Anyway I noticed that Jim 2YC is making steady progress back to health again. Nice work Jim. I never had the pleasure of meeting you at any time during the term of office for VK5 but your name was always synonymous for loyalty and hard work in the interests of our hobby in VK2. Take care of yourself OM.

Sneaked up to 80 mx the other evening to try and catch Jack SLN and Athol SLQ in QSO in search of some news, but like Mother

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Hubbard, the cupboard was bare. Have learned since that they now frequent 1.8 Mc. The broadcast band next, I suppose. You will never get away with it, but keep off SDN!! I was that overcome last month to see the amount of space that YTK was giving to the magazine, that my conscience gave me a couple of severe twinges, and I have decided to write a couple of words about this month. (Quite obviously he cannot count above 10 unless he is barefoot!!) Ed! Mind you, I should be getting the spontaneous benefit of cigarettes those parcels of dressed poultry, to say nothing of the eggs and pork that I have been sending over each month to Ye Ed have certainly gone me plenty. However, it is worth it for the Divisional chairman could not stop but think that his "Wot no cheese?" in his last letter was laying it on a bit thick. After all, when the chassie-giver-away (Ron JRN) was Ye Ed, he used to be satisfied with 1000 occasional callers for his 1000 OK. OK, you know what you can do with your annual supply of noughts, even if it does not make me the highest paid contributor to the magazine, see if I care.

73, see 5PS-Pansy to you-not you Pincott.

## WESTERN AUSTRALIA

Here we are again in an attempt to compile some notes out of very little news. Everyone must realize that if you want notes to appear in "A.R." information must be passed on to your scribbler.

We must begin with some information which has been passed along and could be of interest to someone. We learn that two Amateurs, namely 6ZDW and 6ZBK parked their cars in a well known parking area and while doing so a well known Donkey Driver left keys in his car and although Peter had his keys he could not unlock his doors. They then decided that Tom 6SD lived over the road and decided that they would go and knock on his door. Poor Alyn, he was still tuning with the radio when we may call the people who advertise "Reach for the Phone and not the wrench." The idea being one was a member but you can guess the rest.

How long ago did we lose the lower two megacycles of the 6 metre band? This is a question that many have asked by Alyn 6ZDW. He could not receive the beacon on 52.030 Mc. and blamed his converter for not working. Poor Alyn, he was still tuning from 50 to 51 Mc., hopeful of hearing signals.

Something more of interest to those of other States. Bert 7ZZ is busy, not only in hope of getting on the VK3, but also in hope of journeying through that State later in the year.

At our last meeting we had a very distinguished visitor from Kalgoorlie, 6DX. If you want to know what an amateur lived on all you need to do is invite Bill along. His ability at vocal expression and command of the English language leaves nothing to the imagination. This includes Australian expressions.

It is just as well that Alyn, our Secretary, had had the phone installed in his residence because it could have become embarrassing to the Institute if someone had come to the door and asked which kitchen cabinet the public phone box belonged to the VK6 Division. Of course the chair was necessary for two reasons; (1) Alyn is carrying a lot of weight these days; (2) If you can stop him from talking, let us know how!

The VK3 Radio Scheme is progressing in this State with the formation of a group at Modern School and Henry 6DC forming a group at Applecross. This scheme is a very commendable one and anyone who can assist

anywhere should contact Laurie 6ZEA and he will use you somewhere in the scheme.

By this time the Remembrance Day Contest will be over and we wonder who was successful. Can you read this and know that you helped the S.A. team submit a D.R.T.?

Remember that your Council wants to help you and the Division so if you have any queries, information or complaints bring them along to them.

Send them this uses up all information to hand this month, so what about passing some along for next month. 73, G.E.Y.

## TASMANIA

Once again our Remembrance Day has come and gone. Hope you all enjoyed the weekend and did your best towards helping your Division. Remember though, your participation doesn't help us one bit if you don't get that log away to F.C.C. on time. So if you have not sent it off yet, what about doing it pronto?

Members of the fraternity is deserting VK7. Our North-West coaster, Basil 7BL, sets sail for a place called Spirit River (don't know what kind of spirit) in Alberta, VE land, on 14th August. One thing though, it after all winter in the Arctic, so he should be acclimated for a white Christmas. Anyway Basil, we'll miss you here, but we certainly wish you and yours everything you could wish yourself in your new TWT. No doubt we will hear from him and some future day.

At the July V.h.f. meeting we were privileged to see a film (by courtesy of TYV) called "Compact". This film I understand is "doing the rounds" of all Divisions and if it has not come your way already, it is strongly urged to see it. Most interesting and informative was the general opinion here.

Ted 7EARBasher is not so good at time of writing, but we all hope he will soon be all right again and will be back after a bout of the mumps. That's kids' complaint—must be in his second childhood?

Bob 7OM is interstate in VK4 capital and will be there till early October. Ian 7ZZ and son John are planning three weeks in VK5 during the month of August, looking over for his Dad's 70th birthday. Congratulations and many more returns, Mr. Nichols.

Our general meeting lecture for August was given by Len 7LA and was the postponed by one due to the "Predictable" Long Distance Radio Communications via the Satellite Ionisation Phenomena," and as is usual with one of Len's lectures, it was packed with illustrations and thoroughness.

Then Q.M. 7LX asked, "What constitutes an active Amateur?" A builder and experimenter, or a rag chewer who pounds the ether at every available opportunity? And I know there are two very divided schools of thought on the matter. I personally think that anyone who has studied this phenomena almost daily (except for a few unfortunate and brief periods) since the first Sputnik went up in 1957, yet only very occasionally, if at all, has done any work as a young amateur, is indeed—possibly one of a handful of persons in the world doing such work. Good luck, Len, with this and future efforts you get into.

Believe me, we are to have a visit from Barry 5BS during the September school holidays. Hope you meet up with a goodly number of us over here Barry. Also Arthur ZLSRE will be here and staying with Keith TRX for three weeks starting November 1st.

7ZK is active with a good c.w. signal, mainly on 20, but came back to Ian 7ZZ after the broadcast on 40 the other week-end.

Another signal heard by someone was 7DB, who reported on 14th May after a silence of 16 years. Could this mean something too before long—that's if they pass the Sept. exam. Three I know who are sitting are Barry Ridell, Robert Geeves from Southern Zone, and Bruce Kelly from N.W. Zone. Good luck chaps and hope the answers come easily to you. 7ZAS.

### NORTHERN ZONE

There was a poorer than usual attendance at the last meeting, the total being 15 which included two visitors, David 7ZAT and David Clegg. We hope you will both become Zone members. Unfortunately the taped lectures did not arrive for this meeting.

Ray 7RZ is recovering from his recent operation and with his wife, back to normal again. 7ZRG is still active on the bands after having returned from VK3. He also announced his wedding in the not-to-distant future. Congratulations to you and your XYL-to-be, Norm, from the Zone. A new station, 7ZGP, is now active on 2 mx, mainly at week-ends. 73, Leigh Pretty.

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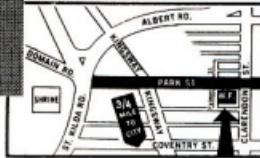


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Heater Current	2.15	2.15	A
Cathode Heating Time (Min.)	3.0	3.0	
Mechanical			
Overall Length (max.)	6.00	6.00	inches
Overall Diameter (max.)	3.062	2.998	inches
Base	B&A	B&A	
Mounting position	Any	Any	

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	C1149/1	C1150/1	
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Pulse Length	2.0	2.0	μ sec
Anode Voltage	29	15	kV
Screen Voltage	1.25	1.25	kV
Grid Voltage	-600	-600	V
Pulse Positive Grid Voltage	150	100	V
Pulse Anode Current	18	15	A
Pulse Screen Current	Approx.	2.0	A
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